

July • 1961

American Perfumer

HEALTH
SCIENCES

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Histochemical studies

Comparative testing of preservative systems

Electro-olfactograms in the rabbit

Present trends in bubble baths



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THE FRAGRANCE OF GARDENIA....

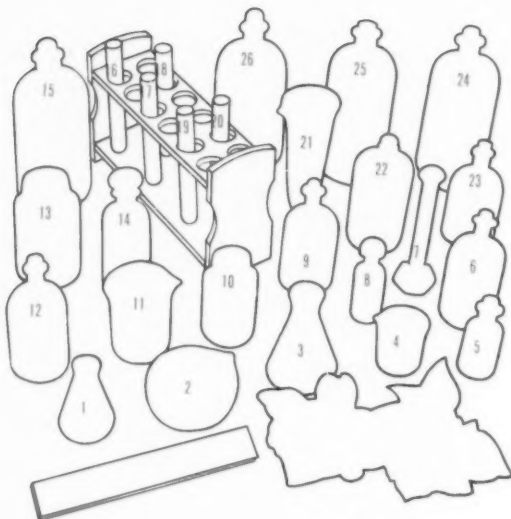


AS THE SKILLED PERFUMER SEES IT....

Shown above, broken down into its twenty-six component parts, are the constituents that comprise one of FRITZSCHE's very successful gardenia specialties. For the record, this is Compound No. 35328. Its parts may be identified by reference to the numbered diagram on the back of this insert. The true complexity, however, of the perfumer's task in composing this fragrance cannot be shown. Obviously involved—as the formulation progresses—are the time-acquired requisites of experience and skill in the blending and balancing of these ingredients, one against the other, in proportions measured by the perfumer's own sensitivity, discrimination and finesse. Obvious, also, is the conclusion that the fragrance creation's finished quality and stability depend not only upon the perfumer's mastery of materials, but upon the absolute uniformity and dependability of every ingredient chosen for his formulation. It is upon such reliability of materials that FRITZSCHE's ninety-year record of service is founded.

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12. ALCOHOL C-10—Clifton produced synthetic.
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14. PHENYLPROPYL ALCOHOL—Clifton produced synthetic.
15. OIL BOIS DE ROSE—Exclusive source of supply.
16. 10% Solution ALDEHYDE C-10 IN ALCOHOL—Commercially available synthetic.
17. d-CARVONE—Isolated by Clifton process.
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19. STYROLYL ACETATE—Clifton produced synthetic.
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American Perfumer

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Histo-chemische Untersuchungen über die perkutane Absorbierung der Substanzen durch die normale Haut

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La tendance présente des bains "Bubbles Baths"

Les formules de "Bubble bath" y sont données ainsi que les parties constituantes dont elles sont composées. L'auteur présente le rôle du parfumeur et suggère des possibilités d'un nouveau marché de "bubble bath".

Tendencias Actuales en los Baños de Burbujas

Se dan las formulas de diversos baños de burbujas así como también varios de sus ingredientes. El autor señala la posición del perfumador y propone una nueva potencialidad para el mercado de los baños de burbujas.

Die gegenwärtige Richtung für Schaumbäder

Wichtige Formeln für Schaumbäder werden zusammen mit verschiedenen Bestandteilen angegeben. Der Autor weist auf die Bedeutung des Parfumfaktors hin und schlägt neue Absatzmöglichkeiten für das Schaumbad vor.

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Paper discusses various uses of placenta . . . its advantages and disadvantages.

July, 1961



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Etude sur les emplois variés du placenta . . . ses avantages et ses désavantages.

La Placenta desde el punto de vista de la común endocrinoterapia
Discusiones en papel varios usos de la placenta . . . sus ventajas y desventajas.

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Experimentos Comparativos de Sistemas Preservativos

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Vergleichende Untersuchungen konservierender Systeme

Lästiges Wachsen von Schimmel gab Veranlassung zu dieser Forschung. Die Versuchsmethode ist für verschiedene konservierende Systeme spezialisiert.

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Electro-olfactogramas en el Conejo

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Industrielle Chemie: 1935-1985

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PACKAGING:

A Cosmetic Buyer's Opinion
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Published Monthly by Allured Publishing Corporation.
Editorial and executive offices: 418 North Austin Boulevard, Oak Park, Illinois. P. W. Allured, President.
Publication office: 1309 North Main Street, Pontiac, Illinois, U.S.A. Subscription Rates U.S.A., Possessions and Canada, \$5 one year; \$1.00 per copy. Other countries \$15 one year. Second class postage paid at Pontiac, Illinois. Allured Publishing Corporation is also publisher of The Manufacturing Confectioner. Copyright 1961.



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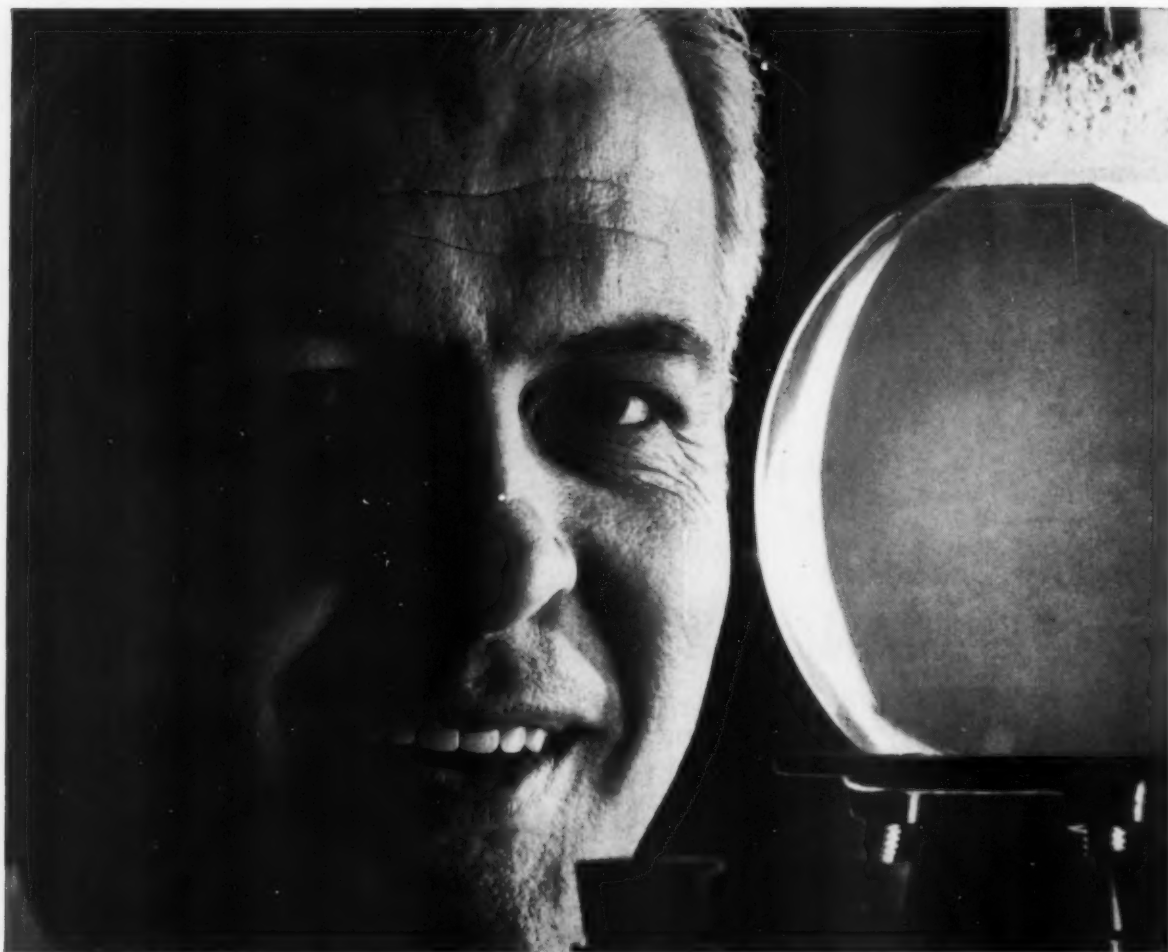
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Notes

The death of Dr. Ivor Griffith, Educator, president of the Philadelphia College of Pharmacy and Science, former president of the American Pharmaceutical Association and a host of other activities, leaves a void that will be difficult to fill Rossi and Rovesti have found usefulness for mushroom extracts in cosmetic products. Skin hydration is one of the properties discovered for the three different mushroom extracts developed.

Under the name of Arobasan, a new highly purified, low microbial count and water white colored gum arabic has made its appearance on the market The latest in cold waving is the addition of fresh milk or cream resulting in a stronger wave. The amount used runs from 0.5 to 2.5% at a pH between 7.0 and 10.0 with a normality of thioglycolic of 0.2 to 1.8 (Brit. Pat. 850,860).

One can now buy a "seaweed" fragrance from a French perfume compounding house An isopropyl adipate is commercially available. It is an excellent bromo acid solvent, as well as a solvent for some of the synthetic musks.

TGMA Convention

For the first time in years, the weather at Lake Placid was warm and sunny—except the night of the President's Ball.

Parento's Jack Quigg celebrated the convention from a sick bed. He

now knows the rates charged by doctors and drug stores in Lake Placid.

Missed a number of regulars—especially at Hawaiian Night. I thought that Peter Moisan and his wife looked VERY Hawaiian.

Highlight of the convention was the morning business session on both Monday and Tuesday, June 12th and 13th.

Amy Booth, Harriett Brennan and Richard Solomon gave one and all an exciting session on the changing picture of retailing in Canada and the role played by the discount houses.

Next year (1962) the U.S. and Canadian Toilet Goods Manufacturers are meeting jointly at the Chateau Frontenac in Quebec City. This should be a humdinger. In view of the countries represented, one of the nights might be labelled "Cuban Frolic". See you there.

Canadian Color Regulations

A statement is made in the Canadian Regulations (EOI.008a) that the arsenic maximum is 1.4 ppm. Canadian manufacturers using U.S. certified colors are told that the arsenic content is less than 2 ppm. This leaves them up in the air.

The confusion comes from the fact that the U. S. regulations refer to 2 ppm arsenic as As_2O_3 . The Canadians state it as 1.4 ppm as arsenic (As) not as oxide. So if you Canadians are using U.S. certified colors, you are O.K.

Honors

On the 29th of May from Dusseldorf, Germany came the following letter:

It is a great pleasure for me to be able to tell you that the board of our Society at its meeting on May 11, 1961 in the city of Konstanz, has made you an honorary member. I hope sincerely that you will do us the honor to accept this membership. The certificate (of honorary membership) should be in your hands in a few days. With best wishes.

*(signed) Prof. H. Th. Schreus
Deutsche Gesellschaft
Für Die Aesthetische Medizin
Und Ihre Grenzgebiete*

My first meeting with Prof. Schreus was at Bonn a little over two years ago. He is a highly regarded man in his profession, and although in the evening of life, exceedingly active both physically and mentally. His English is voluble and with good accent . . . a completely charming dinner conversationalist.

So to Prof. Schreus and the Deutsche Gesellschaft Für Die Aesthetische Medizin Und Ihre Grenzgebiete, "It is with much happiness that I accept the honor you have given me. I hope to make my acceptance in person before your membership in the near future".

Sun Screen Lotions

Johnston, writing in the *Givaudanian*, has come up with some interesting results.

First, he finds that applications of a sun tan lotion by ten people, on three separate occasions, shows a several-fold variation between people in the amount applied, but a fair consistency in the same subject.

When lotion impregnated paper towels were used, the variable between people was greatly reduced.

Seven different compositions (oils, alcoholic solutions, lotions and a silicone solution) were then tested, determining the amount on the skin before and after a 5 minute swim in fresh water. The silicone solution was no better than an alcoholic solution in remaining on the skin under these circumstances. The sun tan oils used were more completely lost in swimming than all the other preparations.

This work was done by using a quantitative method of removing sunscreen from the skin. The original paper gives the details of the technique used.

The author is to be thanked for

doing this work. It is something that had to be done and to my knowledge no comparable data were ever published.

Profit Chart

Today, we want everything at our fingertips. As a result, all of us have charts of one kind or another.



The latest is a handy profit chart. You can establish a fast and accurate selling price based on known costs. On the other hand, retailers can determine profits from expected selling price if they know their unit cost. It's truly a clever "slide rule".

Interaction of Parabens with Nonionic Macromolecules by Seymour M. Blaug and Sayed S. Ah-san.

Methyl, ethyl, propyl, and butyl parabens interacted with various nonionic macromolecules frequently found in cosmetic and pharmaceutical formulations. In general, the binding tendency which the parabens exhibited for the various macromolecules increased with the molecular weight of the paraben. Thus, the strongest complexing tendency was exhibited by butylparaben, followed by the propylparaben > ethylparaben > methylparaben. The hydrophile-lipophile balance of the macromolecules strongly influenced the binding tendency which the parabens exhibited for them. *Thru J. of Pharmaceutical Sciences*, 50, 5, p. 441, May 1961.



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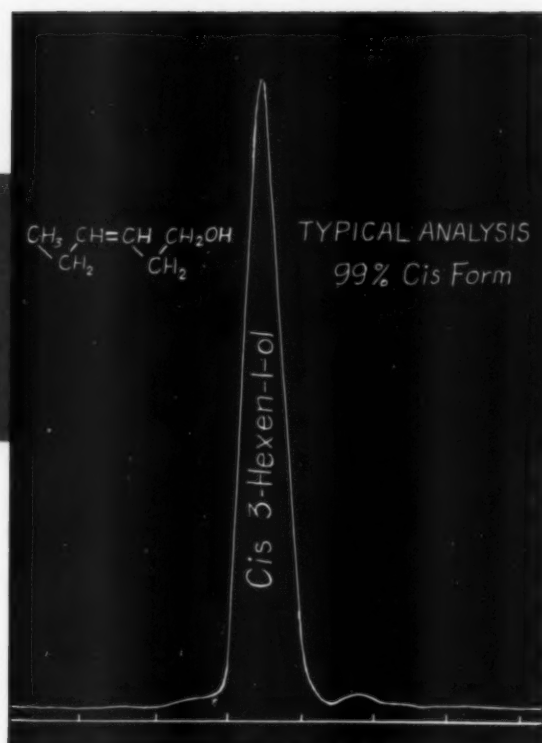
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We are subscribers to your magazine and would greatly appreciate your giving us a formula for a modern black (brown or blond) hair color rinse of the anion-cation color complex type that will not come off with water but only by using shampoo.

B. R. D., Alabama

The best recommendation we can make to you on the formulation of hair colors using the anion-cation color complex technique, is to refer you to a paper by Goldemberg which appeared on page 42 of the November, 1959 issue of the AMERICAN PERFUMER.—Editor.

Wants strengtheners for polish formulations

We would be interested to have some information about the recent trend towards the incorporation of "strengtheners" in nail polish formulation.

Are these, in fact, effective, and what ingredients are recommended for this purpose?

S.H.P.—Surrey, England

There are a number of products on the U. S. Market which are labelled, "strengtheners."

There is a reference in the British publication, Lancet, p365, 1959, relative to the use of sodium phosphate

polymers to stop the cracking and splitting of nails. You might find it to your advantage to check this reference.

There are indications here that formaldehyde resins, partially polymerized, are being used in these nail strengtheners as cross-linking agents. But we know very little about this trend ourselves except by qualitative test, from which the above information has been gleaned.—(M. G. deN.)

Chemical makers and products

We regularly receive your magazine which we find most useful, indeed. We are wondering if there is published in America a book which lists all the chemical manufacturers together with the products that they actually manufacture, this also cross-indexed?

There is issued in the U.K. a book entitled *British Chemicals and their Manufacturers* which is published every two years. This probably is known to you, and we find it very useful . . . it is a convenient form of reference.

B.W.O.—New Zealand

We have no counterpart in the United States of "British Chemicals and Their Manufacturers".

There are a number of publications in this country which list the various common chemical materials and their

sources of supply. One of the best-known is the "Green Book" published by The Oil, Paint and Drug Reporter, 30 Church St., New York 7, N. Y.

—(M. G. deN.)

Wants subscription

I read your magazine, *American Perfumer*, and it is very interesting for me; so I would like to be a subscriber to it. But I need to know the price per year for the subscription. I will send it to you in my next letter.

H. A.—Mexico 1, D.F.

Subscription price to countries outside United States is \$15.00 a year.

Packaging Cosmetics

We are in the private formula packaging and manufacturing business in Canada. We have had a recent inquiry as to the manufacture and packaging of a nail polish and lipstick line.

Your kind co-operation in forwarding to the attention of the writer any information you have recently published with regard to the manufacture and packaging of these products would be greatly appreciated.

P.L.W.—Toronto

As a starter, we suggest you look at pages 32 and 33 in this issue. This talks about the trend in packaging both nail polish and lipstick. Additional information is being sent.

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Histochemical Studies on the Percutaneous Absorption of Substances Through Normal Skin

BY M. BRADSHAW,
Research Histochemist, New York City

THE EVALUATION OF SUBSTANCES topically applied to the skin has resulted in the development of many new techniques which have been described by Blank (1). Histochemistry has not kept pace with the other sciences in this field in spite of many publications describing methods by which tissue changes can be visualized microscopically (2, 3, 4, 5, 6).

Since its introduction, Sudan Black B has been widely used for the histochemical demonstration of lipid (7, 8, 9). Its superiority over other dyes has been amply demonstrated. When formalin-fixed frozen sections are placed in a solution of 70% alcohol saturated with Sudan Black B, the lipid is stained because it is able to extract the dye which is more soluble in lipid than it is in the alcohol. Thus, it was postulated that if the dye could be brought through the living skin it should, theoretically, be absorbed by the lipids in the cell.

Quantitative measurements are not possible by the methods employed in the present study. Visual localization of Sudan Black B in the cells of the epidermis and its appendages is possible, however.

Data obtained from animal skin are not applicable to that of man (1). Ellis and Montagna (10) have reported the presence of two enzymes, phosphorylase and amylo-1, 6-glucosidase in human skin. These enzymes are not found in the skin of other mammals. Structural differences have been noted by others between the skin of man and of animals (1). Therefore, it was deemed necessary to test both rodent and human skin for percutaneous absorption.

Materials and methods

Studies in Humans: Males, age 25, with similar coloring and light complexions were chosen from a group of medical student volunteers. Areas of approximately 4 cm. square, either on the calf of the leg or on the scalp, were designated as application sites. Hair was removed with an electric razor and the area was cleansed with PhisoHex and rinsed with tepid water. In each case a preparation to be tested was rubbed into the skin for one minute with a cotton applicator. The following are the preparations which were used in the study:

1. Sudan Black B in powdered form.

2. A saturated solution of Sudan Black B in 70% alcohol.

3. A saturated solution of Sudan Black B in Lantrol.

4. A saturated solution of Sudan Black B in Nimlesterol.

5. A saturated solution of Sudan Black B in Lanolin.

6. A saturated solution of Sudan Black B in Isopropyl Palmitate.

One hour later biopsies were excised in the operating room by routine surgical procedure and were then processed in one of two ways. Originally, the biopsies were placed in 10% neutral formalin overnight, washed in running tap water, infiltrated with 10% and 25% gelatin, and finally embedded in 25% gelatin. Sections were cut on a freezing microtome, placed on gelatinous slides and mounted in glycerogel.

More recently, biopsies were frozen in petroleum ether kept at -70°C by dry ice and alcohol (11). The frozen tissue was dried with filter paper and stored in stoppered tubes at -20°C . Cryostat sections at 10 micra were affixed to slides and placed overnight in 10% neutral formalin, washed in running tap water for 30 minutes and mounted in glycerogel. Other sections were affixed to coverslips and incubated to show the activity of succinic dehydrogenase (SD), glucose-6-phosphate dehydrogenase (G-6-PD), lactic dehydrogenase (LD), triphosphopyridine nucleotide diaphorase (TPND) and diphosphopyridine nucleotide diaphorase (DPND), (12).

Studies in Animal Skin: Adult New Zealand white rabbits and albino guinea pigs were used to study penetration of substances in animal skin. The animals were sacrificed by over-dosage with Nembutal. Biopsies were taken and sections obtained as described for the human studies. In addition, anhydrous lanolin, Lantrol and Nimlesterol, without added Sudan Black B, were rubbed into the skin of a rabbit and cryostat sections were incubated to show the localization of enzyme activity.

Results

In sections of human skin which was rubbed with Sudan Black B dissolved in Nimlesterol there were spherules of the dye in the cytoplasm of the cells in the stratum germinativum, the stratum spinosum, the stratum granulosum and the stratum corneum. Similar spherules were seen in the cytoplasm of the same cells in sections of animal skin except that they were

Presented February 1960 meeting, New York Chapter, Society Cosmetic Chemists.

This study was supported by grants from N. I. Malmstrom & Co. and Malmstrom Chemical Corp.

more numerous as if more dye had penetrated within an equal period of time through the animal skin. The dye spherules which are of a deep blue or purple color surround the pale nuclei of the cells except in the stratum corneum where they are found in the interstices of the cornified layers. When the dye is dissolved in Lantrol it does not penetrate beyond the stratum corneum. However, in powdered form and when it is dissolved in 70% alcohol or in lanolin the dye does not penetrate any part of the skin. In isopropyl palmitate the dye penetrates unevenly and spherules are found occasionally in the cytoplasm of the cells of the stratum granulosum.

In human hair, dye spherules are found in the shaft when it is dissolved in Nimlesterol but the dye does not penetrate beyond the sheath when it is dissolved in Lantrol. Sudan Black B coats the surface of the hair when it is rubbed in alone, when it is dissolved in 70% alcohol or in lanolin. In isopropyl palmitate some spherules of the dye are found in the hair sheath. Numerous spherules of the dye are found in the cytoplasm of the cells of the eccrine and sebaceous glands when it is dissolved in Nimlesterol and Lantrol.

Rodent hairs have characteristic disc-like structures in the center of the shaft. Part of these structures absorb the Sudan Black B dye from Nimlesterol and from Lantrol. The other part of the disc-like structures remain colorless, and black discs alternate with colorless discs throughout the length of the hair shaft. The hair sheath absorbs a green color from the Sudan Black B. In the present study, when the dye is dissolved in the other substances the hairs remain colorless.

Enzyme Studies: There is no visual change in the localization of the enzyme activity between treated and untreated skin, whether human or animal. In human skin however, there is a reduction of the tetrazolium salt within the stratum corneum. The blue diformazan granules denoting enzyme activity are found in the interstices of the hornified cells. In both human and animal skin G-6-PD, LD, TPND and DPND show good activity in the stratum germinativum, the stratum spinosum and the stratum granulosum. SD activity is confined to the stratum germinativum.

Discussion

The results of the present study indicate that a fat-soluble dye can be used to show depth of penetration. The dye is absorbed by the lipids in the cells of the epidermis. However, if the vehicle in which the dye is dissolved does not penetrate the skin the dye cannot be found in the cells. One of the vehicles studied, Nimlesterol, not only penetrates the stratum corneum but, since Sudan Black B granules are found in the stratum germinativum, it is presumed that Nimlesterol can also penetrate to this layer. The mechanism by which this is accomplished is unknown at the present time. The reason why a vehicle such as Lantrol does not penetrate farther than the stratum lucidum is unknown also. The explanation will be found, undoubtedly, in biochemical and biophysical studies.

Further study is required to explain the increased

amount of Sudan Black B found in animal skin over that in the human skin treated for the same period of time. Perhaps there is more lipid in the cells of the animal epidermis or, on the other hand, the human skin might contain a substance which could act as an extra barrier to a penetrant. These and many other problems offer fruitful fields for research requiring the cooperation of many disciplines.

The penetration through the hair sheath parallels the subcutaneous penetration. The black disc-like structures in the rabbit hair are particularly interesting from the point of view of species difference. It might be possible through similar penetration studies that formulas could be varied to produce substances which could penetrate epidermis only or only the glands.

Visually, the present study shows little difference in enzyme activity. More exact measurements might be possible with the development of a microphotometer such as that developed by Casparsson and his colleagues [as described by Pearse (4)] for measuring the RNA content of cell nucleoli. Thus, disturbances in skin metabolism caused by penetrants could be clearly demonstrated. In another unpublished study, where a topically applied cream caused skin damage, the succinic dehydrogenase activity of the epidermis was visibly reduced.

Cryostat-prepared sections best

The sections prepared in the cryostat are superior to those cut from gelatin embedded blocks. The technique for preparing the latter is tedious and time-consuming. The initial cost of a cryostat is amply repaid by the reduction in man hours involved in preparing slides and in the vast superiority of the cryostat sections when compared to the gelatin ones.

The technique presented here is not meant to supersede any techniques employed previously in studying percutaneous absorption. It could be used, for instance, in laboratories not equipped to carry out radio-isotope work. Its use is indicated also in conjunction with auto-radiography studies such as those recently described (13). It is a technique which offers no difficulties to a competent technician and which could be carried out in any well equipped histochemical laboratory.

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Present Trends in Bubble Baths

BY DR. KARL HEYMAN, Mona Industries, Inc., Paterson, N. J.

WOULD THE FATE of the ancient Roman Empire have changed if the famous baths of Caracalla had abounded with foam? We are often inclined to judge a civilization based on the bodily cleanliness of its people. A closer examination of history, however, reveals periods of cultural magnificence during which personal hygiene left very much to be desired.

The lowly soap required nearly two thousand years to be adopted more universally (at the end of the 17th century) for the cleansing of the human skin.

It was not the desire for cleanliness which stimulated the increased consumption of soap, but its easier availability. Le Blanc's process for making soda ash from brine, needed for the saponification of fats, brought this about. It was likewise the invention of modern syndets which aroused man's fancy to create the bubble bath.

Though a bubble bath will contribute to the washing operation, it cannot be expected to give a thorough cleansing of the skin. A syndet concentration of approximately 0.1% would be needed. This amount in a bath holding 50 gallons of water and more is, of course, entirely uneconomical. A good bubble bath will perform in 0.005 to 0.01% concentration. Of substantial practical value is the ability of bubble bath to prevent the bath tub ring and even this feature will be less impressive in the future with the increasing use of synthetic soap bars. For the hurried bather it may be pointed out that the surface tension depressing action of the bubble bath

will help him dry off faster due to the quicker absorption of the water by the towel.

Not all synthetic detergents can be used in the formulation of bubble baths. Since a comparatively large volume of water is contained in a bath tub, the syndet must be able to form copious and stable foam in low concentrations and must not be affected by calcium or magnesium ions in hard water. This is contrary to shampoos where the concentration of the detergent on the hair is comparatively high. Bubble bath preparations in powder form can carry substantial amounts of water softeners in the form of polyphosphates. Though they are not excessively expensive, they are bulky and somewhat unwieldy to handle. Sequestering agents of the sugar acid or ethylenediamine tetra acetic acid types are often not economical.

The present trend in household detergents is towards the liquid type and it can be assumed that this will also be the case with bubble bath. Considering effectiveness and economy, four distinct groups of syndets have proven their usefulness in the manufacture of bubble baths:

Fatty alcohol sulfates, Alkyl aryl sulfonates, Fatty acid amine condensates and Dioctylsulfosuccinates.

These products are used preferably in combination with each other and with adjuncts of different nature as may be required for specific conditions or purposes. The addition of perfumes, for instance, their choice and character, are of predominant importance. The

following tabulation shows a number of representative bubble bath formulations, the figures indicating per cent of 100% active material:

MATERIAL ⁽¹⁾	FORMULATIONS				
	1	2	3	4	5
a. Lauryl sulfate	42	24			
b. Alkyl aryl sulfonate			22	15	
c. Conventional amine condensate				30	
d. High amide-content condensate	20	10	8		37
e. Nonyl phenol polyglycol ether sulfate			10		
f. Dioctylsulfosuccinate					41
g. Sodium Xylene sulfonate			5		
h. Solvent	10	10	10	5	4
i. Water	28	56	45	50	18
Perfume	approx. 1-3% of the total				

Lauryl sulfate is an old standby of the cosmetic chemist. For liquid bubble bath the triethanolamine salt is recommended due to its better solubility. In Formula 3 the sodium salt is used which raises the cloud point were it not for the addition of solvent and sodium xylene sulfonate, a very powerful hydro-trope.

The most widely used syndet in industry today is the alkyl aryl sulfonate, especially the dodecylbenzene sulfonate. Here we also find that the triethanolamine salt is preferable due to its solubility characteristics. Like the TEA lauryl sulfate it is available in 60% concentration which enables the compounder to prepare rather highly concentrated products.

Particularly indispensable in bubble bath formulations are the presence of the amine condensates made from coconut fatty acids and diethanolamine. Two basic types are available: the conventional condensate made with a surplus of amine; the condensates with extra high amide content. Both these types are recommended. It is of interest to note that the conventional condensate is one of the few, if not the only American syndet, whereas all the others had their origin in Europe.

The amine condensates are excellent foam boosters. They stabilize the foam of the dodecylbenzene sulfonate which collapses easily in the presence of fatty material. Since they are excellent lime soap dispersants, they improve the foam stability in the presence of soap and prevent or diminish the annoying formation of the hated bath tub ring. A further desirable characteristic of these very versatile products is their conditioning action on the human skin, leaving it smooth and soft. The compounder should be cognizant of the fact that the amine condensates exert a pronounced solubilizing effect upon the other ingredients of his formulation which represents a gratuitous benefit derived from their use.

Dioctylsulfosuccinate is a powerful wetting agent with poor foam stability. Fortified with amine condensate or alkylphenol polyglycol ether sulfate, bubble baths can be compounded with them for soft or medium hard water.

Ethyl alcohol is perhaps the most widely used solvent in cosmetic and toiletries preparations. Hexylene glycol has come to the fore in recent years as a very adaptable, though more expensive solvent.

A very important part in the creation of a bubble

bath is played by the perfumer. The foam bath is predominantly a luxury product with aesthetic and psychological effects upon the bather. The enticing scent of the product will increase the desire to immerse oneself in the fragrance, warmth and softness of the bubble bath as a stimulant in the morning or as a sedative after a hectic day.

Stable foam is a paramount requirement for a good bubble bath and the use of syndets alone cannot guarantee this stability in the presence of hard water and soap. As disappointing, however, as a fast collapsing foam can be, a foam too stable can be equally annoying. Time consuming effort is needed to flush the remaining foam away after the water has already drained from the tub and when a horde of expecting users of the bath room are banging at the door. The compounder must, therefore, make a judicious choice among the available raw materials to achieve best results in the final formulation.

Adjust formula for national product

For a nationally distributed product it may be advisable to adjust the formula to the water condition of the different sales areas, as is done with shampoos or liquid household detergents. A varying concentration of the bubble bath will often give the desired result or an instruction to the customer to use an amount of the bubble bath which will give him the best performance.

Bubble bath being a luxury item, the outgrowth of our modern prosperity, requires careful and artistic packaging to foster its eye and sales appeal. Plastic bottles are well suited. Capsules and throw-packages for powders made of water soluble materials have not been too successful since they do not yet dissolve fast enough for early foam formation and sometimes even tend to clog the drain. Aerosol packages should be quite acceptable. The propellant can be inexpensive nitrogen gas which produces a solid stream of liquid that, in this application, is preferable to a mist.

The market potential of bubble bath depends on our continued prosperity and, as a luxury item, requires promotional efforts. The present volume is already substantial, judging from the \$8 million figure of bubble bath sold through chain food stores alone in 1959. Today's consumers are predominantly women and children. It seems to be beyond the honor of the male to indulge in a bath, particularly if it should be scented and foam topped. He still prefers to rush through the shower which is, by the way, an American innovation.

During many periods of history, perfumes for instance, were more widely used by men than by their ladies and sometimes were even the exclusive prerogative of the athletic and warlike male. The cosmetic industry of late has been successful in interesting men to use again in larger quantities its lotions, perfumes and creams. The bubble bath is just waiting to be adopted by them also.

¹ a. 1 and 2 Monapon T
b. 3 Monaterge T, 4 Monaterge SL-40
c. Monamine ADD-100
d. 1 Monamid 150-ADD, 2, 3 and 5 Monamid 150-LW
f. Monawet MO-70E

Placenta in the light of current endocrinotherapy

BY DR. R. STERBA AND DR. A. ZENISEK

IT HAS BEEN KNOWN since ancient times that the placenta is rich in biologically active substances. Then it represented a challenging therapeutic agent which it still remains to-day for a number of chemically and biologically active substances have already been isolated from it. Nevertheless placenta extracts still contain some unknown biologically active substances the stimulating effects of which are often questioned and which have been the subject of charlatan publicity of products. This threatens the good reputation of scientific research dealing with the placenta.

Because of the popularity which placental extracts gained, especially in the field of dermatology and cosmetic practice, we shall attempt to give an explanation of the effects of placental extracts according to our present knowledge of the endocrinological and biochemical aspects involved.

1. History and experimental survey

First let us turn the calendar back a few centuries. In the Middle Ages freshly dried placenta was used to treat sterility, as an aphrodisiac, and to treat apoplexy and epilepsy as well. The tonic effect was supposed to be derived from experiences in the fact that most mammalian females devour their placenta after dropping their young, in order to replace lost vigour. Even in some of the African negro tribes women eat after delivery the fresh placenta with the same aim in view. In China the human placenta has been used for more than 1,000 years as a tonic against debility, headache and insomnia (Kludas¹¹). Externally, placenta is used in folk medicine to accelerate wound healing.

Fifteen years ago a Russian scientist, the Academician Filatov made an attempt to give a scientific basis for the stimulative effects of the placenta.

He demonstrated in the surviving placental tissue substances exhibiting a defense mechanism which he called "biogenous stimulants". These substances after being transferred to a subject with an allergic or hyperergic condition effect a change of reactivity by their stimulative power. Filatov demonstrated these biogenous stimulants in all animal and plant tissues surviving in a cold and dark environment.

In the history of placental research, nevertheless, the conception of Filatov represents only one single stage, even though an important one, which caused much excitement in our country 15 years ago. Of this only the stimulative character of implantations and injections of foreign proteins and the technique of cold extraction remains.

The recent progress of biological and biochemical investigational methods resulted at first in the demonstration of proteohormones with gonadotrophic and

adrenocorticotrophic activity. Subsequently, steroid hormones were found in the placenta and finally a comprehensive biochemic study of placental extracts was carried out.

In a placental extract prepared by cold aqueous extraction a choriogonadotrophic hormone and 3 estrogens, estradiol-17-beta, estrone and 16-alfa-17-beta-estriol, were demonstrated. However the content of these hormones was low so that it was not possible to ascribe clinical results observed to their action (Berth^[2]).

Various effects studied

Theurer^[3] made an attempt to distinguish the effects of the maternal portion of the placenta which acts rather antihormonally, from the action of the internal foetal portion which has a stimulating effect in pituitary insufficiency. He believed that this effect was due to its gonadotrophic and corticotrophic activity. Lundin^[4] described a reduction of the ascorbic acid level in the adrenals after treatment with placental extracts, suggesting an adrenocortical effect. This effect was however also observed after the use of a boiled extract, which would rather speak in favor of a nonspecific effect.

In a subsequent study of placental extracts Rauch^[5,6] determined the common chemical values (weight, mineral content, organic and inorganic substances, alkaline phosphatase, pH and so on) the electrophoretic pattern of proteins, the biological activity of the extract as a whole and of its single fractions, and concluded that biologically stimulating activity was due to some polypeptides in alpha and gamma globulin fractions. The origin of gonadotrophins was also investigated by a biochemical determination of polysaccharides (Thomsen^[7]). From the results obtained in his investigations Thomsen concluded that placental gonadotrophins were predominantly derived from trophoblasts of the placental basal layer and from the septa.

Placental extracts

By injections of placental extracts it has been experimentally possible to maintain gravidity in hypophysectomized rats and in clinical experiments Szendi^[8] carried out homotransplantations of human placentas from the first trimester of pregnancy to 15 patients with secondary amenorrhea. Of these 15 patients, twelve had menstrual bleeding of 3-4 days duration after the treatment. For six up to twelve months these patients had normal menstrual flow. The transplant survived for a few weeks and then degenerated. During this time these patients had a negative reaction for urinary chorionic gonadotrophin. This led Szendi to the conclusion that there again was not a direct humoral effect but a secondary stimulating action.

In Czechoslovakia Soyková-Pachnerová^[9] used orally administered dry-frozen placenta in juvenile metrorrhagia. From 19 cases of juvenile metrorrhagia the bleeding stopped in 27 within 1-5 days. The same author succeeded in increasing the secretion of milk in women during the post birth period by the intake of dried placenta.

The explanation of the beneficial action of placental

implantation by the Filatov method, and of injections of placental extracts in chronic rheumatic diseases has moved from the sphere of "Filatov's biogenous stimulants" to the sphere of adrenocorticotrophic effects. Lutz^[10] used a placental extract in patients with symptoms of debility with a negative Thorn test. The therapy with placental extracts resulted in an improvement to such an extent that the repeated Thorn test showed a positive fall of eosinophils.

In addition to gonadotrophic and corticotrophic activity numerous other substances were demonstrated in the placenta; e.g. vitamins A, C, E, B₂, B₁₂, folic acid, biotin, and also the following elements Mg, Si, Fe, Ca, Mn, and Cu (Jellinek^[11]).

The hormone content varied according to the original material. Placentas from the 3-4 month of pregnancy contain higher values of chorionic gonadotrophin, and mature placentas contain more estrogens. Foti^[12] showed that fresh and desiccated placentas accelerate the process of sugar fermentation. This activity was abolished only after burning to ashes.

Because of all these characteristics, placental extracts are now being used also for systemic stimulation in neurovegetative disorders (Lieder^[13]).

II. Present value of placental therapy

If we consider already identified biologic substances of the placenta from the point of view of our present knowledge in the field of endocrinotherapy and biochemistry, the aqueous placental extracts have primarily a gonadotrophic action which is of course so low that it is far inferior to industrial gonadotrophic preparations from sheep hypophysis, from the urine of pregnant women and from the sera of pregnant mares, which are all now on the market.

In the second place there is a problematic corticoid effect associated with the nonspecific stimulative activity of foreign proteins, which has the stress characteristic of Selye's alarm and adaption reaction. It is accompanied by the output of the endogenous adrenocorticotrophic hormone which stimulates the activity of the adrenals with all the therapeutic implications of an increased production of corticoids.

From all this it follows that, according to our present state of scientific knowledge, the use of placental extracts for internal therapy is irrational and that their use in gonadotrophic and corticotrophic therapy may be considered obsolete.

Topical application

Thus, there remains the topical therapy applied to the skin in which the local hyperemia, effected by the increase of oxygen consumption by the tissues, represents a form of biogenous stimulative treatment. This is due to the enzyme content in the cellular fragments and has a vitalizing power and an activating effect on metabolism (Weiss^[14]).

This therapy will therefore be contraindicated in acute diseases, in tumors and in leukemia (Loos^[15]).

The therapeutic method may further offer a contribution to the treatment of some skin diseases, e.g. seborrhea and psoriasis (Brauner^[16]), or in acne vulgaris (Walter^[17]) and combined with compresses and massage can be used for inducing skin hyperemization and in cosmetology (Schüler^[18]). For this reason Sabe-

tay^[19] advocates the use of placental tissue extracts in cosmetology where it is now already possible to determine the effectiveness of individual extracts.

Benedict^[20] and Goldschmidt^[21,27] are at present measuring the activity of placental extracts with the help of the Warburg method, according to the oxygen consumption in skin specimens *in vitro*. A 3% placental extract strongly influences the oxygen consumption of the skin. For this reason it can be expected that epicutaneous application will stimulate cells of the tegumental tissue, enhance metabolism, increase hyperemia and effect a regeneration of aging cells (Gohlke^[22]).

Experimental experiences

From these experimental experiences, the present restricted indications for the therapeutic use of the placenta follow and a number of placental preparations with a vasodilative effect have recently been introduced. These preparations are suitable for treatment of peripheral circulatory disorders, especially in combination with massage and further for cosmetic application (Szirmai^[23]).

Placental extracts industrially are mostly prepared by cold extraction. A 99.5% aqueous extract is preserved by the addition of 0.5% of Chloreton. Acid preservative agents as benzoic acid, sorbic acid, etc. should be avoided since they interfere with the effects of alkaline phosphatases (Trouyez^[24]).

The temperature of the extract should never be allowed to exceed 50°C because of the possibility of decomposition of the enzymatic constituents. Glycerol-glycol-extracts have the highest hormone content and the estrogens have to be abolished or at least their amount reduced to a biologically ineffective minimal level (Velon^[25]).

Recently there has been a general tendency of standardization of placental extracts with respect to their content of inorganic substances, total protein, amino acids, enzymatic activity and the electrophoretic pattern of proteins (Cotte^[26]).

Ointments and cosmetic creams

As original material, human and animal placentas are used. Fresh animal placentas in oil emulsions are commercially available as "Placenta colloidal". From this material with the help of a neutral diluting agent, an ointment is prepared subsequently. A 10% non-denatured human placenta is available commercially in the form of a suspension in an isotonic solution.

From this raw material producers prepare clear and colloidal injections, comprettes, granules, suppositories and as much as 45 per cent of the products are represented by ointments and cosmetic creams. The last two types are the only ones which are justified today.

III. Personal experiences

We have used some of the preparations tested for their estrogenic activity in the laboratories of the State Institute for the Control of Remedies. It was verified that the preparations did not contain any substances with estrogenic activity and could therefore be safely used clinically. We applied them in the form of ointments and creams.

Female volunteers recruited from the staff of our Institute were used in the testing of placental extracts. They promised to subject themselves to a gynecological and hormonal examination before commencing the application of the above mentioned preparations and again after 8 weeks of treatment. They registered in a menstrual calendar their basal temperature, their cycle and the intensity and duration of single menses. Daily with a light massage these volunteers applied 1 gram of this placental preparation in an ointment base on the skin of the face, neck, and breasts. Neither of these 10 "patients" experienced any side effects on their skin. The gynecological findings were normal in 9 out of 10 cases. One of the volunteers had previously been submitted to hysterectomy and adnexectomy and her cytogram showed a nearly abolished hormonal activity.

In neither of the 10 cases under investigation did the vaginal cytologic pattern show a shift to the left or to the right and also in the castrated patient there was no increase in the hormonal activity. In neither of the nine menstruating women was there a change in the intensity and duration of menses. In no case was a premenstrual tension in the breasts experienced.

Placental extracts in the form of a cream did not show any biologically or clinically harmful estrogenic activity.

Conclusion

From all that has been said about placental therapy and all that has been verified by biological and clinical studies it can be concluded that: adequately prepared and standardized placental extracts do not contain any effective amount of estrogenic hormones and can therefore be freely used, especially in cosmetic creams. These are very popular because of their pleasant, softening and hyperemizing effect on the skin. In view of this the production of controlled, standardized preparations can be advocated.

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Comparative Testing of Preservative Systems

BY L. H. MACDONALD
The Upjohn Company, Kalamazoo, Michigan

THE PURPOSE OF THIS presentation is to describe a simplified procedure which we have found useful in the comparative testing of preservative systems in an aqueous vehicle. This vehicle had been used over many years without trouble from micro-organisms, but more recently, during a preliminary drug trial, developed a mold growth. The preservative used was methylparaben in a concentration of 0.2%, and the vehicle also contained tragacanth as a thickener with citric acid and sodium citrate to hold the pH between 4.5 and 5.0.

The formula was first submitted for testing its ability to support the growth of micro-organisms, by our usual procedure. This test procedure consists of adding a measured inoculum of pure culture from a suitable broth to 30 ml. of unsterilized fluid under test. An initial count is made to check the inoculum as to number and viability, and counts are made at intervals based upon experience and judgment. A common sequence would be one day, three days, one week, one month, etc., until there are three consecutive zero counts, or other definitive results. Serial dilutions are made before plating to have plates that can be counted with reasonable accuracy. We used such organisms as: *Bacillus cereus*, *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Aspergillus niger*, *Candida albicans* and a *Penicillium*. The count of all these organisms but the spore forming *B. cereus* was reduced by our vehicle, using this test method.

The troublesome mold was then isolated and identified as *Cladosporium resinae-avellaneum*. This organism was used in the preservative testing procedure just described, from a pure culture in Sabouraud's

dextrose broth. The methylparaben prevented growth and even eliminated the viable count within weeks. Several different preservative systems were tried:

- Methylparaben 0.2%
- Methylparaben 0.1% and benzoic acid 0.1%
- Methylparaben 0.1% and sorbic acid 0.1%
- Methylparaben 0.07% and sorbic acid 0.07%
- Methylparaben 0.07%, sorbic acid 0.07% and sulfur dioxide 250 parts per million
- Methylparaben 0.175% and sorbic acid 0.1%
- Methylparaben 0.175%, sorbic acid 0.1% and benzoic acid 0.1%
- Methylparaben 0.15%
- Methylparaben 0.1%

Only when the preservative was methylparaben 0.1% did the troublesome mold grow. Methylparaben 0.2% was as good as methylparaben 0.2% plus other preservatives because, by this testing procedure all systems were capable of preventing growth and, in the case of the troublesome mold, even reducing the viable count readily. From this observation we have worked out a seemingly better method for differentiating between preservative systems in this vehicle. The proposed procedure is to enrich the preparation with a medium dilute, (and thus the preservative system) with a comparable amount and check the difference in growth rate, or in the viable count, should the preservative be in sufficient concentration to accomplish a reduction. For our particular problem we were able to use a simplified system; if the mold grew readily it would form large easily recognized colonies on the surface of the fluid and we were able to adapt a visual end-point. As described here, the procedure is

Paper presented before the A.A.A.S., New York meeting, Dec. 30, 1960.

limited in its applicability, but by combining the dilution of preservative with the usual plating techniques of preservative testing, it may be useful with other formulations.

In testing for control of *C. resinae-avellaneum*, our procedure was to measure 50 ml. of the test vehicle into a 500-ml. flint glass bottle. To this was added 10 ml. of medium (Sabouraud's dextrose broth worked very well) and 2 ml. of an inoculum which was usually a contaminated preparation on which the mold was thickly covering the surface. The inoculum was made relatively homogeneous by treating it in a Waring blender at low speed for one to two minutes. The use of a pure culture from synthetic media should also be suitable.

The sample was then diluted to 75 ml., 100 ml., or 150 ml., thus reducing the preservatives to 67%, 50% and 33% of their initial concentration. It was found advisable to set three or four parallel samples at each concentration of each preservative system, since there may be wide variations in the growth rate and also since a few samples may be lost to the growth of other organisms. The end-point was considered to be reached when large colonies (dark gray-brown and furry-appearing on the upper side) were easily visible to the unaided eye. The time required for two of three samples to grow to the end-point was found to be within plus or minus 33% of the average time. Samples requiring more than 50% longer than the average of others to grow were excluded.

Samples run in parallel

Samples of a preservative system with which one has had experience should be run in parallel with new combinations. Primarily this is because a given preservative in a specific dilution will not necessarily allow growth at the same rate that it did previously. Growth time averages for this mold in samples containing 0.07% methylparaben have varied from three to twelve days, but the time of different parallel samples varies less widely. In our studies we used the following conditions of growth: (a) darkness, (b) 25° C., and (c) capped bottles with 300 to 350 ml. of available air. A sterile preparation is not required using this method, but low count (less than 100 per ml.) seems advisable to reduce the likelihood of some

other organism gaining control of the environment over the test organism.

Presented in graphic form (Figure 1) are some data gathered during this investigation. They are not intended as evidence of the relative merits of different preservatives. The percentage figure is that portion of the initial preservative concentration, listed in the title, actually in the test medium. The figure in parenthesis indicates the percentage of methylparaben in the test. The end-point as described above is a large colony, or colonies, on the surface of the liquid that can be readily observed by the unaided eye. In the tests shown in the graphs, the dilution included about 5% of Sabouraud's broth and a heavy inoculum of *Cladosporium resinae*.

Anomaly cited

It was hard to reconcile the apparent anomaly that *Cladosporium resinae* shouldn't but does grow in the presence of 0.2% methylparaben. The most likely explanation was that for some reason, probably chemical, the concentration of methylparaben was decreased in some of this material. All available data we could find indicated that the ester linkage of methylparaben is very stable, and we confirmed the literature in our own experimentation. At pH 4 methylparaben showed no breaking of the ester linkage even after 200 hours at 95° C. Under those conditions the apparent methylparaben rose to 110% of theory; it is assumed this was due to concentration caused by loss of vapor through the seal of the capped bottles. At pH 6 there was a 50% loss of methylparaben in 100 hours at 95° C.

Spectrophotometric examination

Some of the moldy material when examined by ultraviolet spectrophotometry showed about 80% of theoretical absorption at 255 millimicrons, this being the wave length of maximum absorption for methylparaben in the solvent system and at the pH used. However, para-hydroxybenzoic acid absorbs in the same range, its maximum being just four millimicrons lower. By adding sodium bicarbonate to the formula to adjust the pH to about 7.5, and extracting with chloroform, the methylparaben was separated from the para-hydroxybenzoic acid. Measuring the absorption under these conditions we found that rather than having about 80% of theory some of the contaminated material had only 5 to 20% of the initial amount of methylparaben. From this information, we may surmise that methylparaben is de-esterified by some process other than simple hydrolysis. Possibly an esterase is liberated by the presumed dormant mold which reduces the concentration of methylparaben to less than 0.15%, where we have found that the mold can begin growing if the vehicle is enriched. These facets of the problem have not been studied because it did not seem necessary to solving the problem of differentiation between preservative systems.

Acknowledgments

We wish to acknowledge the assistance of the Biological Control unit of The Upjohn Company in carrying out this study and Centraal-bureau voor Schimmelcultuur in Baarn, Holland, for identifying the contaminating organism.

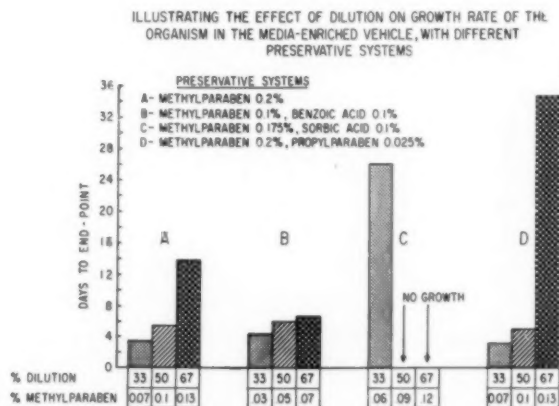


Figure 1.

Electro-olfactograms in the rabbit

By R. W. MONCRIEFF

Consulting Research Chemist,
Chichester, Sussex, England

A measurement study of potential differences on the surface of the olfactory mucosa when it is stimulated by exposure to odoriferous substances

MACLEOD (1) OF THE FACULTE DES SCIENCES DE PARIS has described the measurement of potential differences on the surface of the olfactory mucosa of the rabbit when it is stimulated by exposure to odoriferous substances. The changes in potential vary according to the type of odorous compound. The responses to esters (ethyl acetoacetate) and alcohols (ethyl and propyl) are similar among themselves but very different from those given by benzene acetone or ether.

A difficulty which seems to require resolution is that unpurified laboratory air also gives a very considerable change in potential; apparently the desirable aim of showing that pure air gives no change has not yet been achieved.

A difficulty attached to the use of rabbits for olfactory research is that most adults of a laboratory stock become infected with a rhinitis which makes them almost anosmic. If however, young animals weighing 1 to 1.5 kilos are used this difficulty is avoided and it was animals of this kind that MacLeod used.

Experimental method

The experimental method was to anaesthetize the rabbit with 50 mg. Nembutal per Kg. of animal weight, to cut the windpipe and to fasten each end onto a small tube; a third tube is fixed in one nostril. The olfactory stimulus is given by pressing manually a rubber bulb so that its air content goes through a flask containing a few ml. of odorant. The air then passes up the nostril of the rabbit and down to the severed windpipe. This usually, but apparently not always, gave better results than were obtained by inserting the air via the windpipe and allowing it to come out of the nostrils. It is not surprising that

it did so for the natural way is usually the best. The duration of the puff of odorized air is a few tenths of a second. It is not controlled, nor is the volume that is puffed. This latter is dependent on whether the squeeze is light or heavy, and it can be varied to give a rough control of intensity of odorant.

Changes in potential are measured by two electrodes. The reference electrode is inserted under the skin of the skull near to the orifice through which the other electrode is inserted into the nasal cavity. A small hole is made in the dorsal surface of the nose just in front of the skull, and it is through this orifice that the micro-pipette is inserted. This second electrode consists of a micro-pipette containing 3 M potassium chloride solution and with an extremity which is less than 0.5μ . The potential difference between the two electrodes indicates the change of potential that occurs on the olfactory epithelium when odorized air is passed over it. This potential difference is passed to a transistor amplifier and thence to an oscilloscope. The rabbit preparation may continue stable for as long as five to six hours.

Type of response

The type of response that is shown on the oscilloscope by esters and alcohols is shown in Figure 1; it consists of three parts:

1. An increase in negative potential which lasts for about 0.15 sec. and which is of the order of 5 millivolts.
2. A rapid diminution of this negative potential which brings back the potential nearly to its original value and which lasts for 0.3 sec.
3. A slower continuation of the loss of negative potential process which may last for as long as 2 sec.

It is interesting that there appears to be a latent period. A perceptible time interval occurs between the puff of odorous air and the response on the oscilloscope.

If benzene, or acetone, or ether is used as the odorant instead of esters or alcohols the type of response is different and is similar to that shown in Figure 2. There is an inflection in the repolarization curve and this process continues further and longer, perhaps for as long as 10 sec.

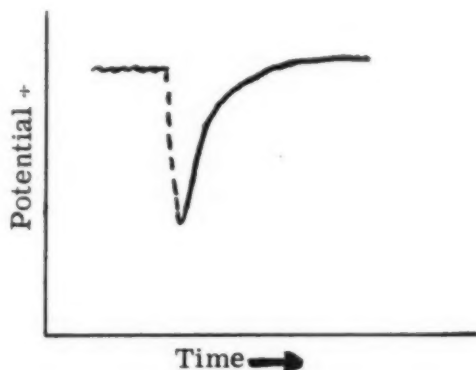


Figure 1

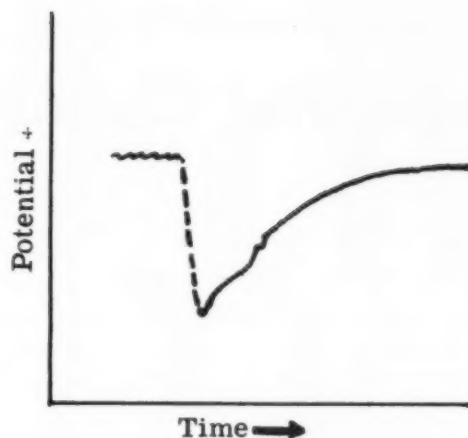


Figure 2

Responses of this kind are obtained only if the electrode is in contact with the surface of the mucous layer in the body of which the olfactory cilia spread out. It has, too, been shown that responses of this kind are not obtained when the electrode undergoes a slight mechanical displacement, and that, in fact, they are found to occur only in the presence of an odorant.

MacLeod concludes that without going into the large number of theories of olfaction, the established fact (2), (3), (4) that the olfactory receptors are stimulated by adsorption of the odorant molecules on the olfactory epithelium permits the following explanation:

Adsorption of the odorant molecules on the olfactory cilia causes a reduction in the electrical resistance of their membranes. This enables the layer of mucous to attain more closely to the potential (which is negative) of the interior of the olfactory receptors. The progressive return to the original potential of the mucous is due to desorption of the odorant molecules from the receptors when the puff of odorous air is exhausted. No attempt is made to account for more than the appearance of the negative potential in the mucous layer.

It does seem that the responses are due directly to the presence of an odorant and also that the nature of the response varies with the kind of odorant present. It may be that the use of the electro-olfactogram will provide a means of discrimination between odors, but present indications are that such a system of discrimination might not be very precise. Furthermore, the difficulty that air, not purposely odorized, will give an "olfactory" response on the oscilloscope requires to be removed before complete reliance can be placed in the method.

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Industrial Chemistry: 1935-1985

BY MIKE BAKER, F.A.I.C., President, M. H. Baker Co., Minneapolis

IF WE WERE TO TRANSPORT ourselves backwards in time to 1935, we would discover that our lives, including our activities in the chemical industry, had changed radically in many ways.

In our daily lives, in 1935, the only synthetic fiber available was rayon. Nylon, Orlon, Dacron and the others still had to be engineered. Phosphors were not in use for general illumination, and there were few fluorescent lights. There were no chemotherapeutic agents of significance, nor had the notion of such agents advanced beyond the dream stage. The exotic fuels necessary to drive airplanes at their present supersonic speeds had not yet been assigned laboratory status. Rockets were chiefly in science-fiction stories. Few believed that the atom could be split.

There were no supermarkets in 1935. The whole idea of prepackaged foods (whether dry, liquid or otherwise) had yet to be developed. Food technology was largely confined to the canning process. Frozen foods had not been developed commercially. There were few cake mixes or other pre-packaged combinations of convenience foods.

Perfume and cosmetic industry changes

The cosmetic industry was only just beginning to discover science in 1935. As it became more acquainted with the rational use of chemistry and physics we saw the development of the cold wave and the home permanent. Shampoo formulations were refined and made more efficient by the addition of the new synthetic detergents. And the new polymer chemistry, about which we will talk later, made its mark in cosmetics, too, through marriage with the new technology of aerosol propellants. This led to the development of spray-can shaving lather, hair fixative spray and many other things.

Perfume, which had been propelled for many years by atomizer, is now being propelled by aerosol. And the contents of the perfume are far different than they were with the development of many new aromatics. In fact, a whole new industry based on the development of synthetic aromatic chemicals has arisen in the past 20 years.

In the field of flavors, as packaged foods became more popular, it became necessary to develop flavors which would remain stable upon storage over many months under heat, cold, and various other conditions of oxidation, reduction, etc. The challenge was met and we now have "locked-in" flavors, dry flavors, new

flavor raw materials which resist light, heat, cold and age.

Liquid detergents had not appeared and soap was still king. Alkyd resins were new and the preferred ingredients for making paint were linseed oil and lead. Automobiles came in two colors, mostly black. There was little consumer demand for multi-shaded colored paints and pigments. Plastics were few with limited properties. Adhesives were mostly of animal origin. The chemist had not thought to use, in adhesives and coatings, the synthetic resins he was beginning to make.

These few examples develop the point that we have indeed advanced in the application of chemicals in industry in the past 25 years. This is what the industrial chemist has been doing this quarter-century.

Had I predicted 25 years ago that the atom would be split and that this would lead to an entirely new chemistry and chemical engineering, to a new world;

that fluorochemicals would be developed into a branch of chemical endeavor closely rivalling the organic chemistry of carbon;

that we would use widely the cooler illumination obtained through the excitement of phosphors;

that we would have a completely new branch of chemical endeavor, called "Food Technology," or;

that the formal field of chemical engineering education would change from the then "industrial chemistry," based on education in unit process, to unit operations emphasis and finally, as now seems to be happening, to determination of rate-change, I would have been considered a crackpot.

Had I talked about the development of a synthetic fibers industry and how its development would bring about, as a by-product, strong sociological changes in the Southland, I might have been hooted off the platform. Yet all these things and more have happened. The world has been changed by developments in process chemistry.

With this as preamble, I can now make the wildest possible predictions with complete assurance. I am certain, however, that my projections will be conservative, because, as truth is stranger than fiction, so it is wilder than most individuals' imagination in the way it unfolds.

These projections are not drawn from a hat. Market research techniques have also developed over these past 25 years to where they are being used quite successfully by most chemical organizations to project the possible future of new products. Market research is also being used to estimate the trend of prices, sales, availability of personnel, and many other things,

Based on an article which appeared in the January 1961 Chemist, with addenda especially prepared by the author for American Perfumer.

statistically, to serve as guidance for future activity. Market research has been described as "educated guesses based on statistical data collected by the Department of Commerce." My projections are offered as "educated guesses based on a reading of the recent history of chemistry"—and a reasonable understanding of chemical technology.

The sea is full of minerals and other wealth which has yet to be exploited. It would be much less expensive to get our minerals, including those we consider cheap, from the sea through newly developed electrically-based refining methods. Admiral Strauss, formerly of the Atomic Energy Commission, once predicted that because of the availability of cheap energy due to the liberation of energy from the atom, "power will be so cheap that we will hardly bother to meter it by 1975."

Whether it is so-called atomic power, solar-derived power, or power derived from the energy layers surrounding the atmosphere, power will indeed be so cheap by 1985 that we will certainly have developed an electro-chemical refining industry to get our metals from the sea. Our new metallurgical industries will be located near the sea coasts and we will use as materials of construction the light metals that are derived easily from sea water.

Source of fuel in future

Demands for high energy fuels have driven us to using boron and other elements. It is now easy to predict that our future fuel requirements will be met largely from the use of water, solar energy, or metal-oxygen combinations as raw materials.

Many chemists will be working on the samples of chemical, biochemical, metallurgical and I-don't-know-what-other-kinds of specimens taken from the surface of the moon and other heavenly bodies. Undoubtedly we will be sampling these bodies within the next 25 years. We will also be developing technology for the re-use of animal wastes and for production of concentrated, high-energy, low-mass fuels, including human foods, for use in making space travel more safe, comfortable, and certain.

Food in 1985

Should our population continue to increase at the explosive rate it is now following (and this seems likely unless another possible controlling projection, such as world government, should take place politically before 1985), we can expect that the chemist who is now the food technologist will have successfully developed purely synthetic foods and new food preservation methods. Irradiation is now being pioneered; other things will follow. By 1985, many protein syntheses will have been developed commercially, and oxygen, carbon, sulfur, and nitrogen will be used to make the protein foods we need. Perhaps they won't be quite cheap enough by 1985, but one can bet on the ingenuity of the biochemist and the chemical engineer to bring about a good part of the technological knowledge which can develop this industry.

At the same time we will be growing cheap natural foods, such as our old friend *Chlorella*, under controlled conditions in highly concentrated, small re-

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Perfumes and cosmetics in 1985

Cosmetics, flavors, perfumes will be adding niceties to our lives in 1985 as they have in the past. Many new startling developments will have occurred. Just as we saw lanolins odor-tamed in past years, making the material more readily available as an emollient in cosmetic preparations during the recent “lanolin craze”, so we will see many other natural products up-graded considerably. Thus, they may be again introduced into cosmetics in an effort to regain the place that many of them are losing in competition with synthetics. The cosmetic chemist, too, will undoubtedly learn to make emulsions that are thoroughly stable for many, many months and, in fact, years of shelf-life. He will develop perfumes which will not be affected in reducing solutions nor in contact with oxidizing agents. New cosmetic colorants will be developed which will be easy to use and to apply and which may be used on human hair and for other cosmetic purposes without harmful effects.

Cosmetics and old age

In this quest to overcome the effects of old age in a population which will consist of increasingly large numbers of people over fifty years of age, the cosmetic chemist will discover materials and how to use them in order to help people remain physically youthful. Together with the pharmaceutical chemist and the gerontologist, lotions and internal medicinals will be developed which will overcome both the outward and inward effects of aging. People will not only *look* younger, they will actually *be* younger physically.

The perfumer will have moved from working effects in the area of aromatic sensation alone and there will be exotic perfumes offered giving other effects of a perhaps quasi-psychological character. We're already doing this with the names of perfumes. It isn't a big jump to the point where things will be added to formulations in order to make people actually *feel* better, etc. This is, in essence, a simple projection from the present world of tranquilizers, pep-pills and the like.

The flavor chemist will work his wonders, too. Many new variants on ancient and familiar spices will be available through the synthetic art. New combinations in flavor and food texture will be available. The artificially manufactured foods and the irradiated foods will require much attention toward their improved palatability. These new foods will, I believe, become the commonplace foods of tomorrow. At the same time, as transportation and communication continue

to bring the world closer and closer together, the foods which are now exotic will also become commonplace and things we do not now use as foods will replace these new items as the "exotics of the future."

Packaging too will take new turns. Glass-polymer types will be developed, providing the strength and durability of the plastics with the transparency of glass. New metals will be used in packaging to a greater extent, with the light metals predominating. There will be a dual trend. More packages will be disposable, light-weight, thin but tough. But on the other hand, as metals become more valuable, as they inevitably must, many new containers which can be re-used, refilled, repacked will also be offered. The "aerosol revolution" in packaging will be followed, through further refinement of both package and propellant, by new expansion of items that can be handled and methods that can be used to deliver them more efficiently and less wastefully to the user.

We will understand more about the creation of life by 1985, and if we can make protein foods, there is undoubtedly going to be some related work done on the recasting of human form or life in order to prolong it. I am not predicting that we will be making synthetic human limbs, but I don't discount it as a possibility. We will improve life's quality and perhaps control to an extent human reproduction.

Atomic industry will grow

The atomic scientist working in applied chemical physics and physical chemistry will have learned much more about what he can do with irradiated materials, isotopes, and so on. It is safe to predict that we will have developed many interesting new ways to run chemical analyses, perhaps by introducing newer simple tracer devices and other chemical and physical phenomena into our analytical procedures—as is already being done. I predict much more highly refined devices. Remember that chromatography was not even thought of as a commercially applicable device in analytical procedures 25 years ago, even though it was mentioned in the literature over 100 years earlier.

New era for metals

With new metallurgy a certainty, we will have denser, tougher metals and plasto-metals which will enable us to build pressure vehicles withstanding much higher pressures than now. There will be new and interesting rearrangements in the polymer area. These will also be developed to withstand higher temperatures. New liquid plastics and tough metal-like plastics will be available, revolutionizing paint technology thoroughly. Have you noticed, incidentally, that only recently someone produced liquid polyethylene, material that stays liquid until it is wanted in solid form?

Organic chemistry will not be based only on carbon. I mentioned fluorine; there are other active elements about which a whole new branch of chemistry will be built.

Having excited your imagination, I hope you can go on from here. My projections, however, are based on a presumption . . . of a world at peace.

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PACKAGING

In the photos, exclusive by American Perfumer, actual department store cosmetic counters are shown. Notice the self-service trend is beginning.



A Cosmetic Buyer's Opinion

packages, since the post-war period, have changed; they are not just containers

BY WALTER R. FRANK, President, The Walter Frank Organization, Hillside, Illinois

RETAILERS WHO MUST merchandise *your* cosmetic packaging have some definite opinions about your efforts. Close to the "grass roots" as they are, the thoughts of a typical department store cosmetic buyer will be of interest to you.

Our buyer is a man of long experience with one of the leading Eastern department stores; he is now top buyer for a chain of more than 20 department stores with Chicago headquarters. Annually, he sees thousands of different packages and promotions and his judgment of these affects annual sales running into millions of dollars.

Good cosmetic merchandising does not end with getting your product into an attractive package or even with large outlay for advertising promotion, our buyer asserts. **Cosmetic products (including toiletries and perfumes) to move today must be out on the counter in a display case or rack that is integrated with the package color and theme.**

The trend to self-service merchandising is making itself felt more and more in all forms of retail selling, the department store executive believes. He maintains that cosmetics displayed on the counter outsell those offered in the usual glass display case by more than 4 to 1.

It is his belief that women have become conditioned by supermarket merchandising, wishing to handle the products they intend to buy. If they cannot do this, they will pass up the otherwise most attractive display.

He cited hair coloring products as a prime example

of a cosmetic, sales of which leaped as a result of being attractively displayed on the counter within reach of potential customers. Among hair coloring products he particularly cited the display for Helena Rubinstein's Color Lift. The paperboard Color Lift case holds all eight colors in the line; has space for a fan of booklets of hair coloring information; is illustrated with pictures of girls with hair colored in the eight shades.

The buyer told of the success of Lanolin's Color Plus nail polish following its introduction of 36 colors in a counter display case. Prior to this development, he said, Revlon's competing line had a strangle-hold on the market, but now Color Plus is competing.

Other manufacturers he cites, who have found success with counter displays are: Tussy for its lipsticks; Max Factor for its cleansing cream; Helena Rubinstein's Coverfluid. The last he singled out for comment on its "action" display. He approved of the arrangement of small vials of the product on a plastic base so that customers may test for the correct color before buying. He also noted that the cap on the plastic tube in which the product is packaged has a convenient groove in which the tube may be rested without spilling when the product is in use. He said the functional groove actually adds to the aesthetic appeal of the package.

The moral: The supermarket influence on package design and package display is making itself felt in other retail outlets.

Are you watching the trend?

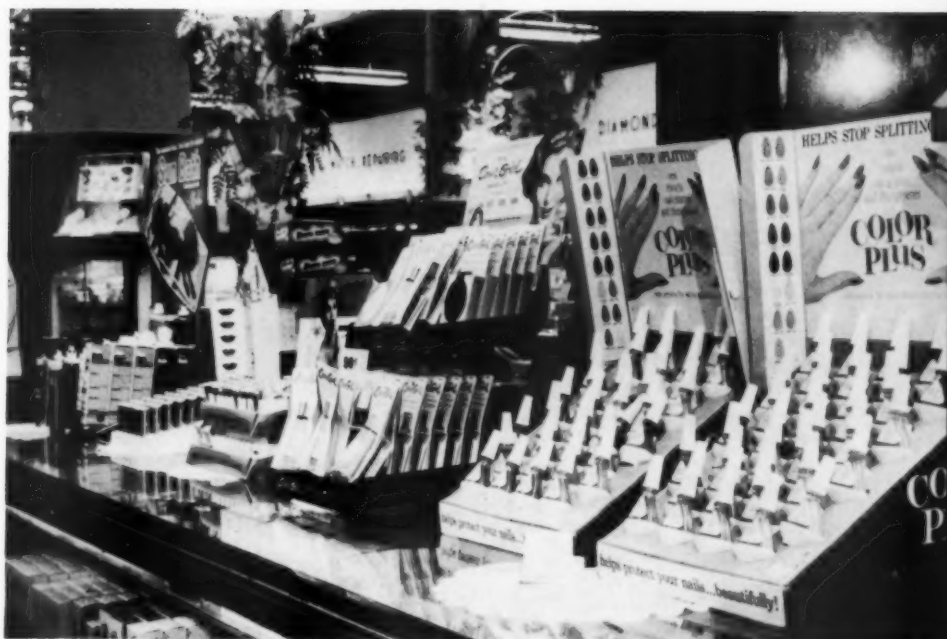
...LIPSTICK



Experience of the Walter Frank Organization, package engineers and designers, covers the entire range of the post-war rise in the importance of packaging. This column will be a regular feature each month in AMERICAN PERFUMER.—The Editors

Counter displays are musts if consumers are expected to buy. The trend is increasing.

Color variety helps sales of nail polish from counter top display, which too is self-service.



The supermarket has influenced buying habits of today's user of all types of cosmetics.

Abstracts of Papers Presented at the Annual Meeting of the American Medical Association Symposium on the Problem of the Aging Skin June 28, 1961

Management of Aging Skin with Cosmetic Preparations

*By Robert G. Carney, M.D., Professor & Head,
Department of Dermatology, University of Iowa*

*Louis C. Zopf, D.Sc., Dean, College of Pharmacy,
State University of Iowa*

Aging skin undergoes certain changes which may cause either physical or psychic problems or both. Cosmetic preparations are useful in overcoming both problems, but so far have failed to halt or reverse the aging process. Various specific cosmetic preparations are discussed. Future developments in the cosmetic care of aging skin may be electrifying, but prevention of aging will probably be the best approach of all.

Management of Aging Skin by Plastic Surgery

*John J. Conley, M.D.,
New York City*

Plastic surgical principles have specific application in the management of aging skin. In essence, it is the practical application of technical skill for the sake of loveliness. Before beginning on this adventure, a careful analysis of all the contributing factors and the means of ameliorating them is essential.

Not all individuals seeking rehabilitation of the aging skin are acceptable candidates. A careful analysis of the person, the blemish and indicated correction establish the warranty for proceeding. Those with systemic disease are excluded. Those having a thick, fat neck and architectural frame that automatically precludes any chance for a worth while result are advised accordingly. Those with inordinately unrealistic attitudes are given psychological counsel. It is significant that the psychological projections for un-

acceptance of the aging phenomenon may constitute a manifestation of serious emotional conflict.

There is no magic in this endeavor. Minute attention is given to the basic surgical principles involved. In the beginning it is the hope of most individuals seeking esthetic improvement that the affair be done quickly and painlessly, have masterful camouflage and guaranteed improvement. These ideal circumstances are justified with qualifications. Complications are born in direct proportion to the amount of surgery performed. In limited procedures with no undermining of the tissues, complications are nil.

As the operation is extended and undermining advanced with the intent of gaining a superior result, the potential for adversity rises. The complications of the face lift technique may attend the surgery, or appear in the post-surgical period. Hematoma is the most common one and is most frequently associated with extended undermining of the tissues of the face and neck. Loss of a portion of the skin flap may also accompany extensive undermining or shaving the tissue flaps too thin. A portion of the facial nerve may be injured with a resultant partial paresis.

In the post-operative period the face may appear too light, uneven or unnatural. The scars which have so meticulously been placed in positions of concealment may become hypertrophied. Finally the face and neck may relapse rapidly within an interval of several months with its attendant psychological stress. It is true that these complications are a great source of anxiety for the patient and surgeon alike, yet all of them can be dealt with in a justifiable attitude of expectant improvement.

It is important for the physician to conceive a physical loveliness having specific meaning for all humans. The intensities of expression associated with this fact constitute a symphony of feeling. Understanding these

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nuances is a measure of the art of medicine. The application of these principles to approximate the patient's needs, rather than proclaim the surgeon's abilities, lends authenticity to the intent.

Dermatologic Surgery in the Treatment of the Aging Skin

*Ervin Epstein, M.D.
Oakland, California*

Certain changes characteristic of the aging skin can be reversed by the proper choice and application of dermatologic surgical modalities. This is true particularly of the use of chemosurgery, cryosurgery and dermabrasion in the peeling of the skin for wrinkles and pigmentary disorders. Planing has a definite place in the treatment of precancerous skin as a prophylactic measure for the prevention of further premalignant or epitheliomatous alterations.

Results on cases extending back six to seven years were presented with colored illustrations. Keratoses and small epitheliomas can be removed at the same time that the entire involved skin is removed by planing without spread of the malignant cells. While dermabrasion does not preclude all possibility of future keratoses and/or epitheliomas, it does decrease the number of future lesions and has prevented any recurrences at all in many cases.

Etiological Factors in Premature Aging

*John M. Knox, M.D., Associate Professor,
Department of Dermatology, Baylor University*

Recent histopathological and histochemical studies have indicated that chronic exposure to sunlight is the major cause of premature aging of the skin. The visible signs of aging such as wrinkling, laxity, leathery texture, and pigmentary changes are limited to light exposed areas of the body, and unexposed areas such as the buttocks will appear normal both grossly and microscopically regardless of age. Negroes often appear deceptively young since their pigment protects them from sunlight-induced degenerative changes.

Physiologic aging may be accelerated by various systemic diseases that affect directly or indirectly the normal biochemical and physiological processes of the skin. Selected conditions were discussed in detail.

Anatomical Changes from Maturity through Senescence

*George F. Odland, M.D., Clinical Assistant
Professor in Anatomy and Clinical Assistant
Professor in Medicine (Dermatology),
University of Washington School of Medicine.*

Older anatomical concepts of age changes in human skin were reviewed and illustrated with selected gross and microscopic examples of aging phenomena. New concepts were discussed in relation to these older considerations. The prospects for new information to be derived from the area of modern "molecular anatomy" were discussed with especial relationship to the epithelial and connective tissue components of skin.

Systemic and Psychological Management of Aging with Particular Reference to the Skin

*Stanley D. Simon, M.D., Associate Clinical
Professor of Medicine, University of Cincinnati,
College of Medicine.*

Skin changes parallel in outward form the internal processes which in the aggregate constitute the aging of the individual. These changes may be precocious or tardy and do not necessarily reflect the chronologic or psychologic age of the individual.

The aging skin in some persons, especially women, may present a peculiar or unique threat to the ego. Skin aging ought to be approached therefore as a specific concept intimately related to the general concept of total aging and should be viewed in a wide perspective. The practicing physician should try to enlarge this perspective so that the individual neither suffers unduly nor causes others to do so. These needs must be related to the social and cultural climate which hedges in the individual member of society.

Adequate specific systemic therapy will necessarily depend on accurate diagnosis such as obtains in all good medical practice, but this cannot be dissociated from large general issues, since aging is an inevitable child of time admitting to no ultimate remedy.

The Physiological Changes from Maturity through Senescence

*Richard B. Stoughton, M.D., Director of
Dermatology, Western Reserve University.*

Functional changes in various biologic reactions of human skin were discussed in regard to age differences. There is considerable information available in regard to sebaceous gland function, connective tissue changes, changes in hair follicles, and epidermal responses. There are also differences in antigen-antibody responses with respect to age and these were discussed.

Some Technical Problems in the Color Additives Field

*By G. Robert Clark, Division of Cosmetics,
Food and Drug Administration,
Department of Health, Education, and Welfare,
Washington, D. C.*

The Color Additives Amendment to the Federal Food, Drug, and Cosmetic Act has posed some new problems for the scientists.

The problems facing the chemists may be divided into two groups, which will be designated as "Group I" and "Group II."

Group I includes investigation of color additives themselves. In order to obtain permanent listing of a color additive under the Amendment, the following conditions must be met:

1. The chemical identity of the additive must be known.
2. Methods for complete analysis of the color additive must be available.
3. A suitable specification describing the color additive must be set up.

(Continued on Page 39)

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(Continued from page 36)

Group II includes development of methods for:

1. Determining the identity and quantity of color additives present in food, drug, or cosmetic products colored with such additives.
2. The identity and amount of any substance that may be present in a food, drug, or cosmetic by reason of the addition of a color additive.

The status of the colors given in Toilet Goods Association's Bulletin No. 3472 is discussed. Principal problems involve the halogenated fluorescein colors and the diazo dyes, all of which will require further chemical investigation and standardization before permanent listing under the Color Additives Amendment. It is pointed out that the problems with the color additives not at present certifiable are substantially the same as those involved in the presently certified colors.

It is pointed out that listing will also require some study of methods for determination of color additives in various products.

In some instances studies of stability of colors in cosmetics will be required.

Substitute for Cocoa Butter as a Suppository Base in Tropical Countries.

By J. S. Robertson.

(Digested from *Journal of Pharmaceutical Sciences*, Volume 50, No. 1, January, 1961, p. 21)

The usefulness of cocoa butter is lessened by the fact that its melting point lies close to 28°C. The addition of beeswax only causes overheating of the cocoa butter or an inconsistency in the mass upon cooling. A substitute in the form of an available natural fat with approximately the same acceptable properties as cocoa butter was sought. Borneo tallow appeared to meet the essential requirements.

The fats used in this work were obtained from the seeds of *Shorea gysbertsiana* Burck, *Shorea martiniana* Scheff, *Shorea palambanica* Mig., and *Shorea sinkawang*. These seeds were shelled and grated. The grated material was extracted with iso-hexane in a Soxhlet apparatus. The properties of the fat from *sh. martiniana* were investigated further by determining its transition point and its composition.

It can be seen that the shape of the cooling curves depends on the temperature to which the fat was heated, and on the length of time it was held at one temperature. The transition temperature was determined to be between 36.7° and 38°C. Results indicated that the shape of the cooling was affected by the rate of cooling.

Much of the behavior of Borneo tallow can be attributed to the polymorphism of the triglycerides. The results led to the conclusion that the fat should not be completely melted; should be held at the melting temperature for as short a time as possible; and that whether completely melted or not, it should be allowed to cool slowly.

Suppositories prepared from Borneo tallow were made in a 15 grain, unlubricated mold. The fat was melted either at 36.7° or 40°C. The fat which was heated to 40° was first cooled in a water bath at 20° until the transition began and then poured. The poured suppositories were allowed to set at either 0°, 20°, or 28°C. Only those cooled at 28°C., returned to their original melting point after one hour and three hours.



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NEWS & EVENTS

Shulton forms proprietary drug division

Shulton, Inc. is entering the proprietary drug field with the formation of a new division to be known as Colfax Laboratories. Frederick C. Visor will manage the development and marketing of new pharmaceutical products and the distribution of the present pharmaceutical line. Colfax will have national distribution through the home products division of Shulton.

Retail sales of toilet goods up 7¼% in 1960

Sales of perfumes, cosmetics and toilet preparations (excluding toilet soaps) for 1960 have been estimated by The Toilet Goods Association at \$1,784,000,000, an increase of approximately 7¼% over the previous 1959 high.

Cited particularly by the association were: dentifrice sales increased at about the normal 3% rate. However, sales of this product in food stores increased 5% and decreased slightly in drug outlets. Shaving creams sales increased more than 8½%, with sales up nearly 13% in food stores compared with drug store sales up about 5%.

Hair coloring materials were up, and the decline in home permanent waving preparations was checked.

Fragrance products (colognes and toilet waters) were up substantially, possibly traceable to increased popularity of aerosol packages, the TGA reports. Also there was a sharp increase in sales of eye make-up preparations.

First quarter sales soap and detergents up

Soap and synthetic detergent sales up 1.9% in volume and 1.0% in dollar value for the first quarter this year, compared with the same period a year ago. This was a new high, topping the high of last year. According to sales from 51 manufacturers participating in the quarterly Sales Census, sales totalled 1,102,044,000 lbs valued at \$278,631,000. The census was conducted by the Association of Amer-

ican Soap & Glycerine Producers.

Also synthetic detergent sales were up. They totalled 858,277,000 lb. and \$206,233,000, an increase over the first quarter last year of 3.9% in quantity and 2.6% jump in value.

Solid synthetic detergents sold totalled 661,633,000 lb. valued at \$143,623,000, compared to 660,542,000 lb. and \$144,123,000 for the same period last year.

Liquid synthetic detergents sales totalled 180,640,000 lb. and \$56,256,000, an increase of 13.8% and 10.1%, respectively, over sales and dollar value for the same period a year ago.

Soap sales for the first quarter this year were 243,800,000 lb. and \$72,398,000, compared with 256,022,000 lb. and \$74,844,000 for the same period in 1960.

First quarter tax take on toilet preparations up

Internal Revenue collections of excise tax on toilet preparations for the first quarter this year were \$40,929,000 compared with \$38,700,000 for the same period last year.

For the fiscal year up to March 31, Federal revenue from toilet preparations totalled \$102,719,000, compared with \$93,335,000 for the same period in 1960.

IFF in Britain builds new plant

International Flavors & Fragrances Inc. is building a new plant and company headquarters for its British subsidiary International Flavors & Fragrances, I.F.F. (Great Britain) Ltd. at Enfield, England.

Completion is scheduled for mid-1962. The facility will have separate flavor and perfumery production units each with its own research and development laboratory, and there will be a building for headquarters and sales.

The new quarters will be about twice the size of present facilities.

TGA elects officers and directors

At the recent convention of The Toilet Goods Association, Jean Des-

pres, Coty, Inc., was elected president of the association for the ensuing year. The vice presidents include: Oscar Kolin, Helena Rubinstein, Inc.; J. I. Poses, D'Orsay Sales Co.; George L. Schultz, Shulton, Inc.; and D. H. Williams, Sterling Drug, Inc.

The Treasurer is Philip C. Smith, Yardley of London, Inc.; and the Secretary, William F. Denney, Jr., Frances Denney.

Those elected to the board of directors are: Joseph A. Danilek, president, Mary Chess, Inc.; Richard L. Gelb, president, Clairol, Inc.; Richard J. Livingston, vice-president, Dana Perfume Corp.; Charles W. Hancock, president, Morton Mfg. Corp.; John E. Hardy, vice president, Daggett & Ramsdell, Inc.; J. B. Nethercutt, president, Nethercutt Laboratories; Richard Salomon, president, Charles of the Ritz, Inc.; George E. Davidson, vice president, Art Decorating Co.; and Daniel H. Reheis, president, Reheis Co.

New Officers of CTR



Officers of the California Toiletries Representatives are: (left to right) William W. Moore, Dana Perfumes, re-elected president for second consecutive term; Max Quimby, Quimby and Wootton, vice president; and Nathan W. Wilson, Parfums Corday, re-elected secretary-treasurer.

Walter Frank Expands facilities

To provide additional room for design, experiment and development facilities, the Walter Frank Organization, package designers and engineers, has added 8,000 sq. ft. to its present main office and plant in Hillside, Illinois.

The Walter Frank Organization, in addition to its design and engineering activities, holds proprietary

rights to a number of consumer packaging closures and designs, and specializes in design and production of packages for retail products.

Self-service cosmetic sections go into Federal stores

Self-service cosmetic and drug sections are being established in a number of Federal Stores of Davidson Bros., Inc. Three Federal Stores in the Detroit area are first on the list for the installation. Others in the Davidson Chain will follow as soon as possible as well as those in the outstate Michigan Federal division and the Kobacker division in Ohio and Buffalo, N. Y.

Virgil Terry, formerly general merchandise manager at Cunningham Drugs, Inc. is the divisional merchandise manager of the new department.

California Toiletries Representatives Hear Goldwater



Luncheon speaker Senator Goldwater is flanked by officers of the California Toiletries Representatives. At left is Executive Secretary Marie V. Carroll; Vice President Max Quimby, Quimby and Wooton; Senator Goldwater; Secretary-Treasurer Nathan W. Wilson, Corday; and President William W. Moore, Dana Perfumes.

Senator Barry Goldwater of Arizona addressed a recent luncheon meeting of the California Toiletries Representatives at Los Angeles Biltmore Hotel. The Senator, who has had broad experience in retailing—as well as in government—discussed government's increasing impact on retail business.

Some 500 toiletries buyers, store executives and manufacturers from seven western states attended.

The senator's business acumen was garnered during 32 years with Goldwater's of Arizona, which ranks among the country's renowned specialty stores. He is firm's board chairman

New book on perfume and materials by Arctander

Steffen Arctander, noted European perfumer, currently employed by International Flavors and Fragrances, Inc., New York City, and instructor of perfumery compounding at Rutgers University, New Brunswick, N. J. is the author of *Perfume and Materials*, just published.

The book, the most up-to-date and complete work dealing exclusively with natural and artificial materials for perfumes and flavors, contains 537 monographs. Det Hoffensbergske Est. of Copenhagen, Denmark is the Publisher.



Rutgers' lecturer, Steffen Arctander (second from left) gives copy of his new book on perfumery to University President Dr. Mason W. Gross. The book is dedicated to Rutgers University for first programs in perfumery. At left is University Extension Division Dean Dr. Ernest E. McMahon. Dr. Peter A. van der Meulen (right) is director of Rutgers School of Chemistry, sponsor of the first perfume classes.

Malstrom Chemical makes research grant

Malstrom Chemical Corp., Newark, N. J., producer of lanolin and lanolin fractions, has made a research grant to the School of Pharmacy, University of Wisconsin, Madison, Wis., for a project to investigate the hydration mechanism of human keratin. This year's research program is directed by Professor Dale E. Wurster.

This is the third in a series of grants to the University for pure research programs designed to investigate the mechanism involved in maintaining a normal condition in the keratin layers of human skin. Previous studies have covered such areas as the adsorption of lipid materials by human keratin, the rate and depth of transepidermal penetration of these lipid materials and the influence of the materials on the mechanoelastic properties of keratin.

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News of the Societies



Warren B. Dennis is newly elected president of the Society of Cosmetic Chemists.

Plastics are the revolution in packaging, New England Chapter hears

"Plastics are the revolution in packaging," Dr. Roger Brandt told members of the New England Chapter of the Society of Cosmetic Chemists, at a recent meeting.

Dr. Brandt, who is with the Bradley Sun Division of American Can Company, has been in the plastics industry since its infancy. He presented a flow diagram of the formation of a plastic tube from the raw material to finished product, and discussed the various materials presently being used for forming the tubes, citing polyethylene and poly vinyl chloride. He also discussed new materials, such as nylon and polypropylene, which are at present under evaluation.

Dr. Brandt pointed out that there were many pitfalls connected with packaging products in plastic tubes, and stressed the necessity for studying the stability of the product in the package. "Plastic tubes," he said, "can be either lined on the inside, or coated on the outside with various materials which either enhance the appearance or the barrier qualities of the plastic tube."

He told of the various tests being used to evaluate cosmetics in plastics, and said, "there appears to be a very bright future for plastic tubes in the Cosmetic Industry."

R. P. Reavey, Publicity Chairman

German Cosmetic Chemists Meet in Frankfurt and Hamburg

At the very well attended session in Frankfurt on March 11, 1961, in the Battelle Institute, Mr. Lesenich, Hoechst, spoke about the atomization of Aerosol products, and Professor Dr. Straubel, Battelle Institute, told of the possibility of determining the particle size of aerosols. Dr. Straubel stressed the possibility of keeping aerosol droplets in suspension by means of an electrical field and to measure them under these conditions.

At the meeting in Hamburg on April 15, 1961 in the Shell House, Dr. Thomas, Holzminden, spoke

about peppermint oils; Dr. Mohrberg, Kempten, discussed plastics as packaging material for cosmetic products; and Dr. Lüdde, Weimar, told about the dielectric and refractometric measurements of fatty oils. A film on the production of various chemical compounds made from petroleum ended the meeting.

SCC honors Dr. J. T. Davies

The 1961 Special Award of the Society of Cosmetic Chemists and a thousand dollar prize was awarded to Dr. J. T. Davies, professor and head of the department of chemical engineering at the University of Birmingham (England). The presentation was made at the semi-annual meeting of the Society on May 12th at the Hotel Biltmore in New York City.

Dr. Davies' work has included studies of olfactory thresholds, the interfacial viscosity of mono-layers, and of quantitative kinetic theories of emulsion type.



Dr. J. T. Davies, receives the Annual Special Award of the SCC from Society President Dr. Sophie L. Plechner.

Allergy and the Cosmetic Formulator discussed at Los Angeles Meeting

Speaking at a recent meeting of the Los Angeles Chapter of the Society of Cosmetic Chemists, Dermatologist Dr. Matthew J. Brunner dealt with the problems of sensitization to chemicals used in cosmetics.

He pointed out that frequently it is not the chemical itself, but a complex of the compound formed with proteins in the human body that causes the difficulty. He said that extensive testing by panels comprised of as many as 2000 persons is necessary to eliminate the possibility of there being sensitive-prone people.

In addition, Dr. Brunner emphasized the responsibility of the cosmetic manufacturer in formulating products to which people will not be allergic.

Next meeting of the Chapter is in September.

E. A. Walker, Publicity Chairman



M. J. Brunner

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SCC of Great Britain holds symposium

Packaging was discussed at a one-day symposium on July 5 at Old Swan Hotel, Swan Road, Harrogate, England.

Organized by R. F. L. Thomas, the conference covered five papers on Plastic and Laminated Films, Glass, New Packaging Materials, Protective Lacquer Systems, and Aerosols.



Officers of the American Society of Perfumers:
Bernard Polak, Polak's Frutal Works, Chair-
man of Board of Directors; **John Hancock**,

Warner Hudnut, 1st Vice Pres.; **Edwin D. Morgan, Jr.**, Lever Bros., Treasurer; **Edward Shuster**, Intl. Flavors & Fragrances, 2nd V.P.

Speakers and Program Chairman at the Semi-Annual Meeting SCC



(Left to right) **Dr. Jack J. Goodman**, The Toni Co.; **Dr. Joseph B. Jerome**, American Medical Assoc.; **Dr. Richard E. Faust**, Potter Drug and Chemical Corp.; **Herbert Cockeram**, Acme

Shellac Products Co.; **Morris J. Root**, Program Chairman; **A. P. Kent**, Colgate-Palmolive Co.; **Theodore Swenson**, Helene Curtis Industries, Inc.; and **Dr. Gilbert Leigh**, Colgate-Palmolive

New Officers of SCC California



Officers to lead the California Cosmetic Association for the ensuing year are, left to right: President **James R. Young**, Avon Products,

Inc.; **L. A. Canary**, The Lander Co., Inc., treasurer; and **Edward Costa**, Kolmar Laboratories, Inc., secretary.

NEW PRODUCTS

Portable Extractor Bows

Extractor that is portable and constructed of polished stainless steel has just been introduced. The 38" x 48" base is on 5" diameter casters. It is 53" high and comes with stainless sanitary pump, driven by $\frac{1}{2}$ hp, 1750 rpm motor.

Extractor tank is 16" x 34", and the solvent heating tank has capacity of 100 gal.

Safety features include: pressure relief valve, explosion-proof motor, sight flow indicator, automatic temperature controller, indicating regulator, explosion-proof immersion heaters, and pump timer for automatic recycling.

More information available from **Terriss-Consolidated Industries**, Dept. AP, 22 Wooster St., New York City 13.

New Copolymer group

The availability of the first of a series of vinyl ether polymers and copolymers has been announced.

The first entrant in the new product line is Gantrez AN resin, a water-soluble copolymer of methyl vinyl ether and maleic anhydride (PVM/MA). It is a free-flowing, white powder, is soluble in water over the entire pH range, and is also soluble in many organic solvents. Aqueous solutions of Gantrez AN tolerate most inorganic salts without "salting out." In aqueous systems, it functions as a thickening agent and as a protective colloid. The polymer is also compatible with most water-soluble gums, resins and common plasticizers. **General Aniline and Film Corp.**, 435 Hudson St., New York 14, N.Y.

Colloidal alumina

The development of "Baymal" colloidal alumina, has been announced. Chemically, "Baymal" is a white, free-flowing powder, consisting of clusters of minute fibrils of boehmite (AlOOH) alumina. It disperses and swells up in water to form a stable colloid. A colloidal dispersion dries to form a film, which is stable at high temperatures. Because it is wet both by water and certain organic liquids, "Baymal" can act as an emulsifier and a thick-

ening, dispersing, and suspending agent in both water and water-alcohol systems. A four per cent dispersion can be changed from a very liquid solution to a very viscous sol or paste through a slight change in acidity. These viscous sols and pastes are highly thixotropic. **The Du Pont Company**, Wilmington 98, Delaware.

Titration indicator

Acid-base and metal titrations are greatly simplified, thanks to a new indicator in stable tablets, ready to dissolve and use. The tablets not only serve for acid-base titrations (yellow in acid solution, blue in basic); they are a nearly "universal" metallochromic indicator for chelometric titrations of most metals. Each tablet contains 0.5 mg of the sodium salt of 3,3'-[bis-N, N'-di (carboxymethyl)-aminomethyl] - thymolsulfonphthalein, formulated with specially selected binder. The indicator remains stable indefinitely, if the bottle is kept closed. **Fisher Scientific Co.**, 318 Fisher Building, Pittsburgh 19, Penna.

High-flow filter at delivery end

"Turbomonitor" is high-flow filter designed for point of delivery or nozzle-end hose and pipeline installations.

The filter contains a stainless steel cone-shaped wire cloth filter element for 10-micron filtration at differential

pressures up to 150 psi. It is made in 10½, 14½, and 17½" lengths and accommodates flow rates of 300, 360 and 720 gpm, respectively, at ambient temperatures.

Unit monitors effectiveness of upstream primary filter installations and collects contaminant which may damage operating equipment downstream.

Pressure drop is said to be nominal, running 3 lb. across stream on the smallest unit and 7 lb. on the largest.

Aluminum housing has 4" NPT female inlet and outlet connections. Special 304 stainless steel sleeve is provided to prevent galling between mating halves.

Said to handle a pressure drop of 150 psi, the unit can be backflushed with clean flow product. Laboratory and shop cleaning is accomplished by a detergent wash, then ultrasonic cleaning. Porosity may be checked by a bubble integrity test.

Purolator Products, Inc., Sect. AP, Dept. 203, Rahway, N. J.

Instrument makes dipole moment measurements

Dipolemeter DM 01 is a precision measuring instrument designed for the evaluation of molecular electrical dipole moment of liquids.

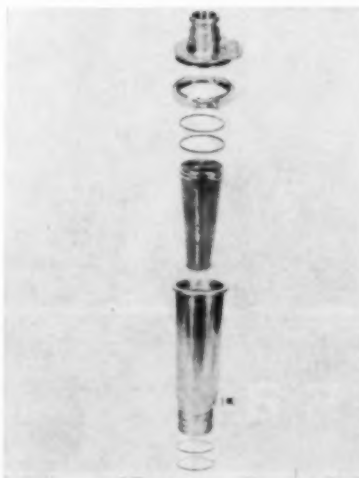
The instrument measures the dielectric constant of liquids, pastes and solids for non-destructive quality control. Purity, chemical investigations, dielectric analyses, etc. can be determined with the instrument. Measuring range is 2.10^{-5} for liquids. Interchangeable cells and micrometer electrodes are available for various media and substances to be analyzed.

Kahl Scientific Instrument Corp., Dept. AP, P. O. Box 1166, El Cajon, Calif.

Tile-like finish for masonry

An exterior or interior finish coating for all types of wall surface, has been introduced in an assortment of colors.

Named Tylike, the coating has the appearances and characteristics of porcelain tile. It is said to be applied



by roller and needs no special equipment or instructions.

Material is waterproof, acid resistant and easily cleaned, the maker reports, and is especially suitable in rooms where dustfree conditions are necessary.

Industrial Aids Co., Dept. AP, Locust Road, Locust, N. J.

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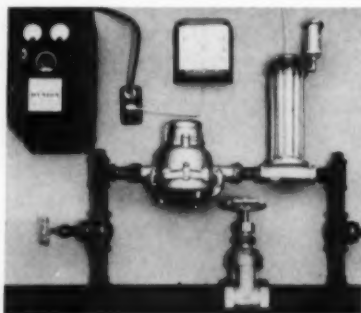
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Tamper-proof Seal

A new tamper proof seal for aerosol cans may be used with any standard 1" valve cup. It is of a height which will clear most valve activators and can be used in conjunction with most commercially available overcaps. In operation, the closure is easily torn off for use of the product, but after removal, the seal cannot be repositioned, thus making any pre-sale tampering with the product readily evident. Open vents along the lower edge of the valve cup permit ready drying of the valve cup after passing through the water bath on the filling line. PharmaPlastics, Inc., 205 S. Smallwood St., Baltimore 23, Md.

Ion water sterilization

New process for silver ion water sterilization is said to have great bacteria kill and is useful by cosmetic



and perfume producers to eliminate undesirable precipitations in finished products.

The unit is compact and easily installed and operates on 110-v current. About 1/70th of the water to be

treated is drawn out of the system and passed over six silver electrodes. The electrically-charged silver decomposes and releases a heavy concentration of silver ions to the water. This saturated solution enters the system and mixes with the rest of the water, acting to purify all of it. The concentration of silver used—.02 to .03 parts of silver per million parts of water—is not toxic to humans or animals, the maker states.

Scharf Manufacturing Co., Dept. AP, 6120 Binny St., Omaha, Neb.

Atomizers and perfume droppers match



Matching atomizers and perfume droppers are produced in heavy imported polished sham-leaded clear, pink, or smoke crystal. Metal parts on the crystal and pink atomizer are gold plated; on the smoke-tone bottles, metal parts are silvertone. Each atomizer has a matching netted bulb, carrying Holmspray guarantee.

T. J. Holmes Co., Inc., Dept. AP, Chartley, Mass.



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PERSONALITIES

William T. C. Huber is new cosmetic and drug merchandising manager of "McCall's Magazine". Previously he was with "This Week Magazine" as cosmetic and drug Marketing manager.

Harry B. Wasserman has been elected a vice president of Lanolin Plus, Inc., Newark, N. J. and will be senior brands manager. For the past 11 years he was associated with By-mart-Tintair, Inc. as vice president and director of sales.

Dr. Werner R. Boehme is newly appointed director of Central Research for Shulton, Inc., New York City. He is in charge of the organic and pharmaceutical laboratories. Previously Dr. Boehme was manager of medicinal chemistry research at Ethicon, Inc., division of Johnson & Johnson.

Theodore W. Schmitt is new president of the Collapsible Tube Manufacturers Council. Schmitt, who succeeds **Frederic Remington**, is executive vice president of Peerless Tube Company, Bloomfield, N. J. Remington, founder of the council, is president of Peerless.

Irving A. Tanner is new manager of field sales for Chanel, Inc. Formerly, he was regional merchandising director for the Clemby Co.

Lucy Miller has been named to newly-created post of co-director of department store sales for Yardley of London, Inc. She is a former president of the Southeastern Toilet Goods Association, the only woman to have held that office.

Dr. Martin Barr has been appointed professor of Pharmacy and chairman of the Department of Pharmaceutics at Wayne State University, College of Pharmacy, Detroit. The appointment is effective July 1.

Dr. Arthur I. Gebhart, who helped search out new products for the Colgate-Palmolive Co., has retired. He was coordinator of scientific liaison in the firm's research and development. His preliminary studies assisted in determining whether it was desirable for the company to organize full-scale research programs for further

investigations. Also he has headed the company's scientific contacts with other research groups since 1958.



David Gregg, Jr.

New member of board of directors at Shulton, Inc. is **David Gregg, Jr.** He has served as vice president-International since 1958. He joined Shulton in 1950, and five years later was appointed assistant to the president-Foreign. Gregg became manager of the international division a year later.

Also at Shulton, **Adam J. Grodin** has been named vice president in charge of Art. He has been executive art director since 1959; was named art director in 1950.

Francis Goby, Tombarel Freres, S. A., Grasse, France, has been appointed president of "Syndicat National des Fabricants d'Huiles Essentielles et Produits Aromatiques Naturels."

Arthur Tarasov is new assistant director of research at Rilling Dermetics Co., and **Philip Carrubba** is new control director. Both men previously were group leaders at the Bridgeport, Conn. firm.

Roubechez-Chicago, Inc. now has new offices at 1414 South Wabash Ave., Chicago, Illinois. Also the new address of Roubechez Canadian representative, **R. M. Ferguson & Company, Ltd.**, is 4195 Dundas Street West, Toronto, Ontario.

Travelers

Leo Schulman, manager of Essencias Fleuroma Ltda. (Fleuroma's affiliate in Sao Paulo, Brazil) is in the United States for management conferences and for a two month vacation.

The firm's Brazilian plant has been producing cosmetics and industrial oils for the Brazilian market since 1958.



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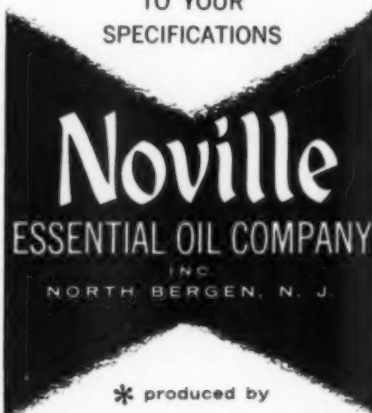
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Some Perfumers Who Attended New York Meeting



Lanolin Plus' Dave Garlen is flanked by Al Eisenkraft and Dave Warner of Fleuroma, Inc.



Mr. & Mrs. Steve Capkovitz, S. B. Penick & Co.



Robert Horsey, Givaudan-Delawanna, Inc.; and Edwin J. Manheimer of J. Manheimer.

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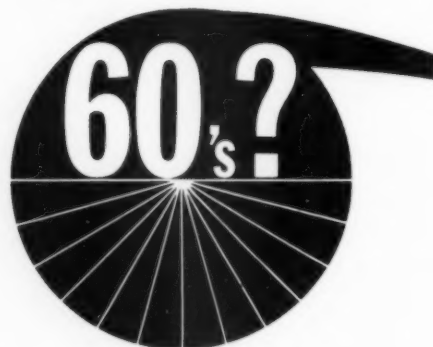


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Charles Pisano, Citrus & Allied Essential Oils Co.; Camille H. Bourguet, American Aromatics, Inc.; Ivor Budd, Ungerer & Co.

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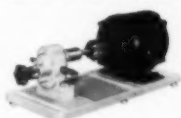


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Rene Bourguet, American Aromatics, Inc.; Robert W. Montgomery and Gerald C. Schlenker, Verona Aromatics.



Louis Bazard, deLaire, Inc.; Dr. R. B. Wearn, Colgate-Palmolive Co.; C. L. Lightfoot, Goldschmidt Chemical Corp.; and George H. Fuller, Colgate-Palmolive Co.



Jean Paul Baude, Fleuroma, Inc.; Robert Brown, Fritzsche Bros., Inc.; Dr. Jerry Kaufman, Fleuroma, Inc.; Henry Weiner, Fleuroma; Edward Silkin, Houbigant, Inc.; John Lisek, Fritzsche Bros., Inc.



Frank Milo, Rhodia, Inc.; Miss Charlotte Quinn, Dorothy Gray Ltd.; Arthur A. Gogarty, Tombarel Products Corp.; William Brosie, Stalford Pressure-Pak; Fred Taylor, Lehn & Fink Products Corp.



Jacques Masson, Flam-Heft Laboratories; Dr. Paul Lauffer, Northan Warren; C. F. Wight, Intl. Flavors & Fragrances; and Alfred Moeller, Noville Essential Oils, of the Symposium Committee.

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Maurice Raviol, Lautier Fils, Inc.; Ralph Fine, Colgate-Palmolive Co.; Douglas S. Dodge, Bertrand Freres.

Thompson Wins Essential Oil Association Golf Tourney



Byron N. Thompson (right) of International Flavors & Fragrances, Inc., was winner of the recent Essential Oil Association's golf outing, at White Beeches Golf Club, Haworth, N. J. Handing him the President's trophy is Robert H. Horsey, vice president of sales for Givaudan-Delawanna, and president of the EOA. This was the group's 10th annual outing.

Rieger and Brechner Win CIBS Award

Dr. Martin M. Rieger and Dr. Stanley Brechner, Warner-Lambert Pharmaceutical Company, Inc. were winners of the CIBS (Cosmetic Industry Buyers' and Suppliers Association) 1961 award. The award was given for their paper "Studies on the Adsorption of a Simple Dyestuff by Hair", and was presented at recent luncheon of the Scientific Section of TGA by CIBS President Robert C. Ring, Sales manager, Duveen Soap Corp.



Doctors Rieger and Brechner receive 1961 CIBS awards from CIBS President Ring. (right). Awards were made during TGA convention recently in New York City.



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Making of Perfumes Abroad Shown to Perfumers

How flowers are cultivated and how their fragrance is captured for use in perfumes were shown in two sound-color moving pictures at the May 17 meeting of the American Society of Perfumers in New York City.

The first movie was "Parfums de France" which showed the method of cultivation of flowers in the various flower growing areas. From then on it covered the various processes by which the essential oil is abstracted and finally how the finished perfume is made. The film, loaned to the association by the Ministry of External Commerce of France and the Association of French Perfumers, was presented by M. Weill of the French Embassy.

One of the most interesting parts of the film showed the care taken in the manufacture of Guerlain perfumes and the stringent means employed to guard each step of the process, especially the formulas. They are locked in a safe and are only known to

members of the Guerlain family. The formulas were created by the founder of the company many years ago.

The second film was a fit companion for the first for it showed the isolation, identification and synthetic reproduction of flower oil and flavor components by the use of modern research instruments and methods. The film "Challenge—Nature's Chemistry" was produced by Firmenich & Co., Geneva, Switzerland. Like the first picture it was in color and was made to honor Nobel, Faraday and American Chemical Society winners in perfume and flavor chemistry.

President Harry Cuttler presided at the meeting with his usual skill; and at its conclusion a vote of thanks was extended to Program Chairman Edward Shuster and to the Association of French Perfumers, the Ministry of External Commerce of France and to Firmenich & Co. for their courtesy in lending the films to the Society. The meeting was well attended by members and numerous guests. The next meeting of the Society will be held in September.

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INDUSTRY EVENTS CALENDAR

July 24-26—American Oil Chemists' Society, Short Course on newer lipid analyses, University of Rochester, Rochester, N. Y.

July 27—Chicago Perfumery, Soap and Extract Association (Par-Busters' Golf Outing), Itasca Country Club, Itasca, Ill.

Aug. 6-12—18th International Congress of Pure and Applied Chemistry, University of Montreal, Montreal, Canada.

Aug. 17—Chicago Perfumery, Soap and Extract Association. Annual "swing party" and dinner dance, Glen Flora Country Club, Homewood, Ill.

Sept. 14—Chicago Perfumery, Soap and Extract Association (Par Busters Golf Outing) Calumet Country Club, Homewood, Ill.

Oct. 10—Chicago Perfumery, Soap and Extract Association, Luncheon, Sheraton Towers, Chicago.

Oct. 18-20—23rd Annual National Packaging Forum, Biltmore Hotel, New York City.

Oct. 31-Nov. 1—First International Symposium of Automatic Merchandising, McCormick Place, Chicago.

Nov. 7-10—Packaging Machinery Manufacturers Institute Conference-Workshop and Exposition, Cobo Hall, Detroit, Mich.

Nov. 27-Dec. 1—28th Exposition of Chemical Industries, New York Coliseum, New York City.



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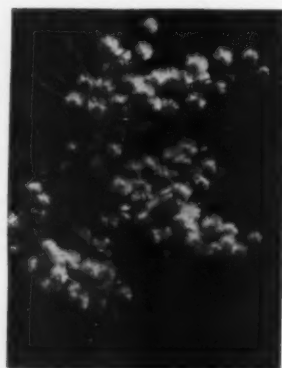
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